BUILDING AUTOMATION
CONTROL TECHNOLOGY
SENSOR TECHNOLOGY

alre

AIR CONDITIONING TECHNOLOGY

sustainable and precise

ALRE CLIMATE CONTROLLERS. FOR **A PERFECT INDOOR CLIMATE.**

Enjoy a perfect indoor climate and the highest degree of comfort! Whether it is about protecting investments, equipment and valuables or feeling comfortable indoors, our climate controllers keep humidity and temperature in perfect balance. Adjustable daily programs with display controllers ensure sustainable and energy efficent heating - a topic, in light of global climate issues, that is more relevant than ever.

alre climate controller: comfortable indoor climate any time of the year.

APPLICATION **EXAMPLES:**

- Cooling ceilings
- Fan coils
- Hot water underfloor heating
- Air distribution systems
- Partial air conditioners
- Heat pumps
- AC split units
- Dew point monitoring
- Relative humidity control
- Accessories such as terminal strips and actuators

OVERVIEW

4

CLIMATE CONTROLLER

Electronic climate controller with triac output (noiseless) 5

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ROOM TEMPERATURE CONTROLLER, HEATING / COOLING, SURFACE-MOUNTED, ULTRA-SLIM

ROOM TEMPERATURE CONTROLLER WITH CLOCK, HEATING / COOLING

ROOM TEMPERATURE CONTROLLER, HEATING / COOLING, 3-STAGE FAN OUTPUT

TERMINAL STRIP VOORL-318.053

CLIMATE CONTROLLER OVERVIEW

	KTRTB-		KTBSB-			KTRRB-					KTRRU-	KTRRUu		KTRVB-			
TYPE	211.108	251.108	112.000	113.500	112.070	117.128	117.163	117.169	052.244	052.245	052.245	217.456	257.456	048.100	048.200	052.244	052.245
PAGE	5	5	6	6	6	8	8	8	10	11	13	17	19	23	23	24	24
HOUSING DESIGN																	
Berlin 1000	x	x															
Berlin 2000									x	x				x	x	x	x
Berlin 3000			x	x	x	x	x	x									
Berlin flush-mounted kit											x	x	x				
SENSOR																	
Bimetal (toggler)			x	x	x												
NTC internal	x	x				x	x	x	x	x	x	x	x	x	x	x	x
NTC external						x	x	x	x	x	x	x	x			x	x
Floor monitor (NTC)																	
Dew point sensor (external)									x	x	x	x	x			x	x
CONTROL TYPE																	
Climate controller	x	x															
Climate controller (0–10 V)								x				x	x	x	x	x	x
Climate controller with fan output			x	x								x	x				
Climate controller with neutral zone							x		x	x	x	x	x			x	x
Climate controller with neutral zone and fan output					x	x		x				x	x				
Mixing chamber controller (0–10 V)														x	x		
PIPE SYSTEM																	
Air conditioning controller in 2-pipe system	x	x				x	x	x	x	x	x	x	x			x	x
Air conditioning controller in 4-pipe system			x	x	x	x	x	x	x	x	x	x	x			x	x
APPLICATION EXAMPLES																	
Hot water floor heating									x	x	x	x	x	x	x	x	x
Fan coil			x	x	x	x		x									
Air distribution systems			x		x	x											
Partial air conditioner	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Cooling ceiling	x	x							x	x	x	x	x	x	x	x	x
Heat pump				x													
AC split unit				x													
FEATURES																	
‘ECO’ input	x	x				x	x	x	x	x	x	x	x			x	x
Input ‘changeover – heating / cooling’	x	x							x	x	x	x	x			x	x
‘Off with frost protection monitoring’ input						x	x	x	x	x		x	x				
Switch ‘on / off’			x	x	x												
Switch ‘on / off with frost protection monitoring’						x	x	x									
Switch ‘heating / cooling’																	
Switch ‘heating / ventilation / cooling’				x													
Switch ‘ECO / comfort / off with frost protection monitoring’										x	x						x
Switch ‘fan’			x	x	x	x		x									
Indicator lamp ‘ON / OFF’				x	x												
Indicator lamp ‘heating mode’																	
Indicator lamp ‘heating’	x	x		x					x	x	x	x	x			x	x
Indicator lamp ‘cooling’	x	x		x					x	x	x	x	x			x	x
Indicator lamp ‘heating / cooling’																	
Indicator lamp ‘cooling interruption due to condensate’									x	x	x					x	x
MISCELLANEOUS																	
230 V~	x		x	x	x	x	x	x				x					
24 V~		x							x	x	x		x	x	x	x	x

ELECTRONIC CLIMATE CONTROLLER WITH TRIAC OUTPUT (NOISELESS)

SURFACE-MOUNTED ‘SUPER-SLIM’ INSTALLATION – DESIGN BERLIN 1000

°C
30
25
20
15
10
alre

TECHNICAL DATA

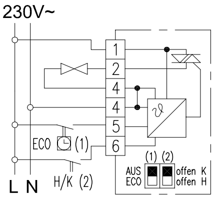
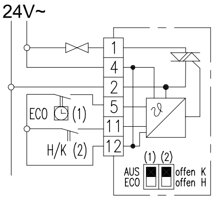
Design:	Berlin 1000
Surface finish:	glossy
Housing colour:	pure white, like RAL 9010
Housing material:	ABS plastic
Ambient temperature:	0 … 40 °C
Storage temperature:	−20 … +70 °C
Permissible atmospheric humidity:	max. 95% rel. humidity, non-condensing
Electrical connection:	screw-type terminals 0.5 mm² to 1.5 mm²
Mounting / attachment:	surface / wall mounting (4-hole assembly on flush-mounted socket)
Protection rating:	IP 30
Safety and EMC:	according to DIN EN 60730
Max. power consumption:	< 0.8 W
Switching power:	15 W
Switching element:	triac
Switching contact:	NC contact
Sensor:	NTC, internal
Control function:	Heating or cooling
Control range:	5 … 30 °C
Hysteresis:	0 K since control is practically continuous
Proportional range:	approx. 1 K
General features:	ECO function; ‘heating / cooling’ display; ‘off with frost protection monitoring’ operating mode; mechanical range restriction; scale: degrees Celsius; external setting

APPLICATION

This controller was specifically designed for heating / cooling regulation of 2-pipe systems used in hotels, homes and offices and can control up to 5 valve actuators (normally closed).

The KTRTB's internal sensor measures the room temperature and activates heating or cooling depending on the deviation from the configured setpoint temperature. As the switching element used is a triac rather than a relay or bimetal, the system operates without bothersome switching sounds.

ECO function: if this function is selected, the temperature is adjusted down by 3 K in heating mode and up by 3 K in cooling mode.

TYPE / IMAGE	ITEM NO.	FEATURES	CIRCUIT DIAGRAM	EURO / PG
KTRTB-211.108 	MA700300	**Operating voltage:** 230 VAC, 50 Hz **Protection class:** II, if properly mounted **Max. switching current:** 65 mA **Max. switching voltage:** 230 VAC, 50 Hz **Min. switching voltage:** 230 VAC, 50 Hz **Output signal:** switching PWM (230 VAC, 50 Hz) **ECO contact:** 230 VAC, 50 Hz, optionally configurable as ECO or OFF function	 230V~ 1 2 4 4 5 6 ECO (1) L N H/K (2) (1) (2) AUS ECO offen K offen H	
KTRTB-251.108 	MA700400	**Operating voltage:** 24 VAC, 50 Hz **Protection class:** III, protective low voltage **Max. switching current:** 625 mA **Max. switching voltage:** 24 VAC, 50 Hz **Min. switching voltage:** 24 VAC, 50 Hz **Output signal:** switching PWM (24 VAC, 50 Hz) **ECO contact:** optionally configurable as ECO or OFF function	 24V~ 1 4 2 5 11 12 ECO (1) H/K (2) (1) (2) AUS ECO offen K offen H	

Accessories: suitable valve actuators ZBOOA

ACCESSORIES	ITEM NO.	FEATURES	EURO / PG
JZ-21 	MN990006	**Adapter frame for mounting room temperature controllers of the Berlin 1000 series in flush-mounted sockets up to 80x80 mm**	
ET-01 	MA990000	**General features:** Adjusting knob for B1000 series devices, scale: Degrees Celsius, pure white glossy	
ET-02 	MA990001	**General features:** Adjusting knob for B1000 series devices, multi-digit display 1 … 6, pure white glossy	

MECHANICAL CLIMATE CONTROLLERS KTBSB

SURFACE-MOUNTED INSTALLATION – BERLIN 3000

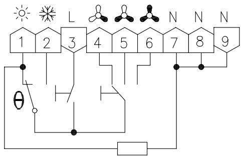
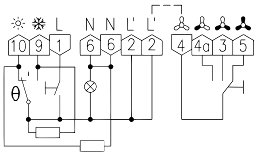
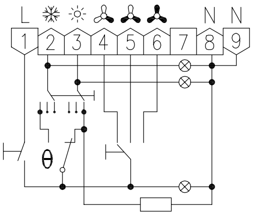
TECHNICAL DATA

Design:	Berlin 3000
Surface finish:	matt
Housing colour:	pure white, like RAL 9010
Housing material:	ABS plastic
Operating voltage:	230 VAC, 50 Hz
Ambient temperature:	0 … 30 °C
Storage temperature:	–20 … +70 °C
Permissible atmospheric humidity:	max. 95% rel. humidity, non-condensing
Electrical connection:	screw-type terminals
Mounting / attachment:	surface / wall mounting or by means of an adapter plate on a flush-mounted socket
Protection rating:	IP 30
Protection class:	II, if properly mounted
Safety and EMC:	according to DIN EN 60730
Max. switching current:	6 (3) A
Max. switching voltage:	230 VAC, 50 Hz
Min. switching voltage:	230 VAC, 50 Hz
Switching power:	1380 W
Switching element:	bimetallic contact
Switching contact:	changeover
Output signal:	switching (230 VAC, 50 Hz)
Sensor:	bimetal
Control function:	Heating or cooling
Control range:	5 … 30 °C
General features:	mechanical range restriction; thermal feedback; scale: degrees Celsius; on / off switch; external setting

APPLICATION

Control and monitoring of temperatures in closed, dry spaces. Remote control of air conditioners, climate chests, fan coil systems in living and office spaces and doctors' practices. Individual room optimisation in central air conditioning systems (hotels, hospitals etc.).

Suitable for all heating systems. (Please note the maximum switching current.)

TYPE / IMAGE	ITEM NO.	FEATURES	CIRCUIT DIAGRAM	EURO / PG
KTBSB-112.000 	MA200100	**General features:** 3-stage fan output; **3-stage fan switch; Switch 'On / Off'** **Hysteresis:** approx. 0.5 K at a temperature change of max. 4 K / h	 L N N N 1 2 3 4 5 6 7 8 9 θ	
KTBSB-112.070 	MA200202	**General features:** single-room climate controller with neutral zone for 4-pipe systems; 3-stage fan output; 2x auxiliary output 'on / off'; **'on / off' display, 3-stage fan switch; 'on / off' switch** **Hysteresis:** heating approx. 1 K, cooling approx. 2 K, at a temperature change of max. 4 K / h **Neutral zone:** approx. 2 K	 L N N L' L' 10 9 1 6 6 2 2 4 4a 3 5 θ	
KTBSB-113.500 	MA200000	**General features: 'on / off' display; 'heating' display; 'cooling' display;** for 4-pipe systems; 3-stage fan output; **heating / ventilation / cooling switch; 3-stage fan switch; 'on / off' switch Hysteresis:** approx. 0.5 K at a temperature change of max. 4 K / h	 L N N 1 2 3 4 5 6 7 8 9 θ	

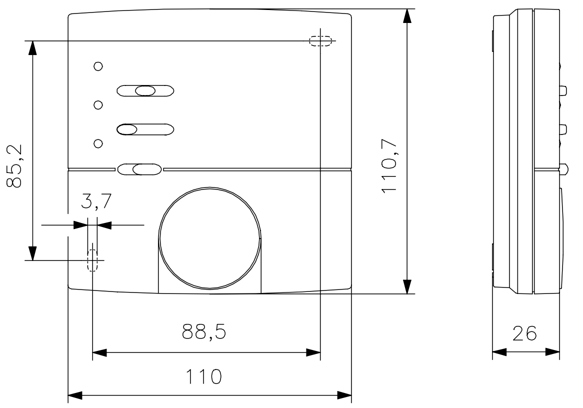
Accessories: Terminal strips VOOPL, compatible valve actuators for ZBOOA-010.1xx, adapter plates to mount in flush-mounted socket JZ-17
You can find other controllers with outputs for heating / cooling in the 'Heating technology' section (RTBSB / RTBSU).

MECHANICAL CLIMATE CONTROLLERS KTBSB
SURFACE-MOUNTED INSTALLATION – BERLIN 3000

ACCESSORIES	ITEM NO.	FEATURES	EURO/PG
JZ-17	MN990001	**General features:** adapter plate for mounting devices on flush-mounted sockets (including fastening screws for mounting the controller on the adapter plate) **Surface finish:** matt **Housing colour:** pure white, like RAL 9010 **Housing material:** ABS plastic	

ILLUSTRATIONS

KTBSB



JZ-17

ELECTRONIC CLIMATE CONTROLLER, KTRRB

SURFACE-MOUNTED INSTALLATION – BERLIN 3000

alre
20
15
10
5

TECHNICAL DATA

Design:	Berlin 3000
Surface finish:	matt
Housing colour:	pure white, like RAL 9010
Housing material:	ABS plastic
Operating voltage:	230 VAC, 50 Hz
Ambient temperature:	0 … 40 °C
Storage temperature:	−20 … +70 °C
Permissible atmospheric humidity:	max. 95% rel. humidity, non-condensing
Electrical connection:	screw-type terminals
Mounting / attachment:	surface / wall mounting or by means of an adapter plate on a flush-mounted socket
Protection rating:	IP 30
Protection class:	II, if properly mounted
Safety and EMC:	according to DIN EN 60730
Max. switching voltage:	230 VAC, 50 Hz
Min. switching voltage:	230 VAC, 50 Hz
Switching element:	relay
Switching contact:	NO contact
Output signal:	switching (230 VAC, 50 Hz)
Sensor:	internal NTC, optional external NTC ‘Sensor 2’
ECO contact*:	reduction by 3 K; alternatively, this input can be configured as a frost protection contact
Control function:	heating and / or cooling
Control range:	5 … 30 °C
Neutral zone:	approx. 2 K
General features:	operating mode ‘off with frost protection monitoring’; mechanical range restriction; scale: degrees Celsius; external setting

APPLICATION

Single-room temperature controller with neutral zone for 2-pipe or 4-pipe air conditioners.

External flow sensor (H / C sensor):
For automatically switching the controller to heating or cooling mode in 2-pipe operation depending on the inflow temperature; alternatively, this input can be used as an H / C changeover contact.

Sensor rupture and short-circuit protection:
in case of a sensor rupture or sensor short-circuit, the heating is activated with a power-on time of 30% to prevent cooling or frost damage in the room.

TYPE / IMAGE	ITEM NO.	FEATURES	EURO / PG
KTRRB-117.128 	MA601300	**General features:** single-room climate controller, 3-stage fan output, fan operation in neutral zone ON / OFF selectable; **on / off switch; 3-stage fan switch Max. switching current:** heating 5 (1) A, cooling 5 (1) A, fan 3 (1) A **Switching power:** heating 1150 W, cooling 1150 W, fan 230 W **Hysteresis:** approx. 1 K	
KTRRB-117.163 	MA601400	like KTRRB-117.128 but without 3-stage fan output and 3-stage fan switch	
KTRRB-117.169 	MA601500	**General features:** single-room climate controller; **‘off / manual fan / automatic fan’ switch; ‘ventilator 3-stage 0–10 V’ switch;** ‘parametrisation 3-stage fan output’ button; **‘heating, cooling,** frost protection, sensor rupture or short circuiting of the external sensor’ display; 3-stage fan output 0 – 10 V with adjustment to individual fan stages or dynamic 0–10 V to activate **EC fans**; ON / OFF: ventilator operation in neutral zone selectable **Max. switching current:** heating 5 (1) A, cooling 5 (1) A **Switching power:** heating 1150 W, cooling 1150 W **Output signal:** Analogue 0 – 10 V (5 mA) for activating an rpm-controlled fan **Hysteresis:** approx. 0.5 K	

Accessories: Adaptor plate for mounting on flush-mounted socket JZ-17, terminal strips VOOxx (see catalog), suitable valve actuators ZBOOA-010.1xx (see catalog, suitable external sensors (‘sensor 2’; see ‘Sensor technology’)
You can find other / similar controllers with outputs for heating / cooling in the ‘Heating technology’ section (RTBSB / RTBSU).

*With ECO operation, the neutral zone (2 K) is extended by the ECO zone (+ / – 3 K). ECO operation is a savings mode that should be controlled, for example, via a window contact and / or a timer.

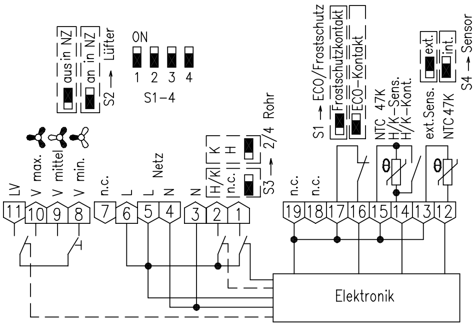
ELECTRONIC CLIMATE CONTROLLER, KTRRB

SURFACE-MOUNTED INSTALLATION – BERLIN 3000

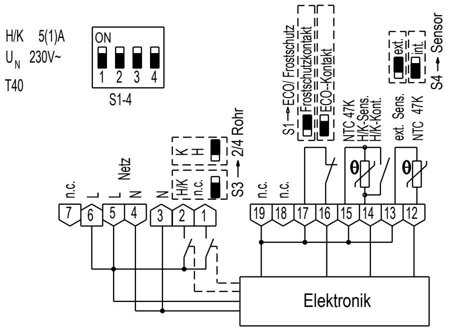
ACCESSORIES	ITEM NO.	FEATURES	EURO/PG
JZ-17 	MN990001	**General features:** Adapter plate for mounting devices on flush-mounted sockets (including fastening screws for mounting the controller on the adapter plate) **Surface finish:** matt **Housing colour:** pure white, like RAL 9010 **Housing material:** ABS plastic	

ILLUSTRATIONS

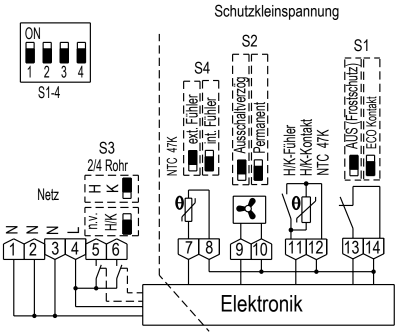
Circuit diagram KTRRB-117.128


LV
V max.
V mittel
V min.
aus in NZ
an in NZ
S2 → Lüfter
ON
1 2 3 4
S1–4
n.c.
L
L
Netz
N
N
H/K
n.c.
K
H
S3 → 2/4 Rohr
n.c.
n.c.
S1 → ECO/Frostschutz
Frostschutzkontakt
ECO–Kontakt
NTC 47K
H/K–Sens.
H/K–Kont.
ext.Sens.
NTC 47K
ext.
int.
S4 → Sensor
11 10 9 8 7 6 5 4 3 2 1
19 18 17 16 15 14 13 12
Elektronik

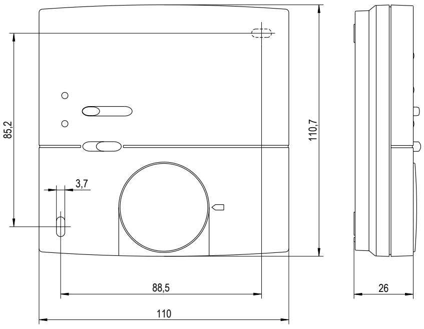
Circuit diagram KTRRB-117.163


H/K 5(1)A
U_N 230V~
T40
ON
1 2 3 4
S1-4
n.c.
L
L
Netz
N
N
H/K
n.c.
K
H
S3 → 2/4 Rohr
n.c.
n.c.
S1 → ECO/ Frostschutz
Frostschutzkontakt
ECO–Kontakt
NTC 47K
H/K-Sens.
H/K-Kont.
ext. Sens.
NTC 47K
ext.
int.
S4 → Sensor
7 6 5 4 3 2 1
19 18 17 16 15 14 13 12
Elektronik

Circuit diagram KTRRB-117.169


Schutzkleinspannung
ON
1 2 3 4
S1-4
S3
2/4 Rohr
Netz
N N N L
H K
n.v. H/K
S4
NTC 47K
ext. Fühler
int. Fühler
S2
Ausschaltverzög.
Permanent
H/K-Fühler
H/K-Kontakt
NTC 47K
S1
AUS Frostschutz
ECO Kontakt
1 2 3 4 5 6
7 8 9 10 11 12 13 14
Elektronik

Housing design – 'Berlin 3000'


85,2
110,7
3,7
88,5
110
26

ELECTRONIC CLIMATE CONTROLLER FOR COOLING CEILINGS, KTRRB

SURFACE-MOUNTED INSTALLATION – DESIGN BERLIN 2000 – WITH INTERNAL AND EXTERNAL (OPTIONAL) TEMPERATURE SENSOR

TECHNICAL DATA

Design:	Berlin 2000
Surface finish:	matt
Housing colour:	pure white, like RAL 9010
Housing material:	ABS plastic
Ambient temperature:	0 … 40 °C
Operating voltage:	24 VAC / 50 Hz, 24 VDC
Storage temperature:	−20 … +70 °C
Permissible atmospheric humidity:	max. 95% rel. humidity, non-condensing
Electrical connection:	screw-type terminals
Mounting / attachment:	surface / wall mounting
Protection rating:	IP 30
Protection class:	III
Safety and EMC:	according to DIN EN 60730
Max. switching current:	1 A
Max. switching voltage:	24 VAC / 50 Hz, 24 VDC
Min. switching voltage:	24 VAC / 50 Hz, 24 VDC
Switching power:	24 W
Switching element:	relay
Switching contact:	NO contact
Output signal:	Switching, 24 VAC / 50 Hz, 24 VDC
Sensor:	NTC internal, optional external, ‘Sensor 2’*
Hysteresis:	approx. 1 K
General features:	External dew point sensor connection; mechanical range limitation; external setting

APPLICATION

Temperature controller for cooling ceilings / walls and all kinds of hot water heaters in 2- and 4-pipe systems for hotel, home and office spaces. As the KTRRB features dew point monitoring, it is highly suited for controlling ceiling cooling systems.

The unit can control up to 5 valve actuators (24 V~ normally closed) per output. The types KTRRB-052.24x can be adapted to normally open actuators (24 V~, max. 5 pieces) with a jumper.

When using 0 – 10 V actuators: KTRVB-052.24x.

TYPE / IMAGE	ITEM NO.	FEATURES	CIRCUIT DIAGRAM	EURO / PG
KTRRB-052.244 	DA420600	**General features:** ECO function; **‘heating / cooling / cooling interruption due to condensation / off’ display; ‘sensor rupture,** sensor short-circuit, frost protection’ display; relative scale **External flow sensor (H / C sensor):** for automatic switching of the controller in heating or cooling mode depending on the inflow temperature (‘Sensor 2’). Alternatively, this input can be used as an H / C changeover contact **Eco contact:** upon closing the contact, the ECO function is actuated **Forced switch-off contact:** external switch-off function with frost protection function **Control function:** heating and / or cooling, cooling interruption upon condensation of the dew point sensor, frost protection function in the switched-off condition **Control function:** 13 … 29 °C **Setting range:** −8 … +8 °C **Neutral zone:** approx. 2 K **Pipe system compatibility:** 2-pipe and 4-pipe		

ELECTRONIC CLIMATE CONTROLLER FOR COOLING CEILINGS, KTRRB

SURFACE-MOUNTED INSTALLATION – DESIGN BERLIN 2000

TYPE / IMAGE	ITEM NO.	FEATURES	CIRCUIT DIAGRAM	EURO / PG
KTRRB-052.245 	DA420700	**General features:** ECO function; **'heating / cooling / cooling interruption due to condensation / off' display; 'sensor break, sensor short-circuit, frost protection' display;** operating mode 'off with frost protection monitoring'; relative scale; **off / comfort / ECO switch** **External flow sensor (H / C sensor):** for automatic switching of the controller to heating or cooling mode depending on the inflow temperature ('Sensor 2'); alternatively, this input can be used as an H / C changeover contact **ECO Contact:** upon closing the contact, the ECO function is actuated **Forced switch-off contact:** external switch-off function with frost protection function **Control function:** heating and / or cooling, cooling interruption upon condensation of the dew point sensor, frost protection function in the switched-off condition **Control range:** 13 … 29 °C **Setting range:** −8 … +8 °C **Neutral zone:** approx. 2 K **Pipe system compatibility:**2-pipe and 4-pipe Replacement for KTRRB-040.213		

* An internal trimming potentiometer can be used to select whether control should be based on the internal (left stop) or external sensor (right stop). In the intermediate positions, if both sensors are used, a weighting is applied to the internal room sensor and the external radiation sensor. The weighting allows for compensation of different structural conditions such as large window areas or cardinal directions. For very slow controlled systems, it is recommended to assign a higher weighting to the radiation sensor than to the internal room sensor.

Accessories: suitable valve actuators ZBOOA-040.100, suitable external sensors ('Sensor 2'); see 'Sensor Technology'.

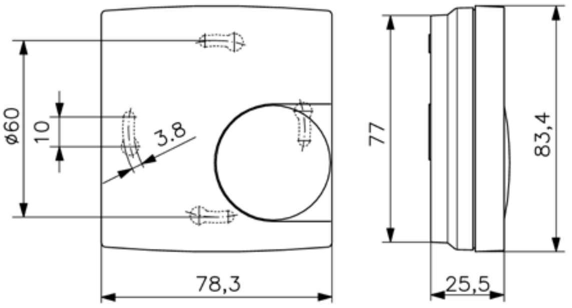
ACCESSORIES	ITEM NO.	FEATURES	EURO / PG
TPS 1 	G8000299	**Mounting / attachment:** using clips on cooling ceiling capillary pipe **Use:** drywall cooling ceiling (plasterboard) with hung up capillary pipe mat, metal ceiling cooling ceiling with integrated capillary pipe system **Sensor line extendable up to:** 50 m with 2x0.5 mm^2 **Scope of delivery:** sensor, 2 clips for cooling pad	
TPS 2 	G8000300	**Mounting / attachment:** using clips on cooling ceiling capillary pipe or cable ties on the pipe **Use:** pipe systems transporting cold water, plaster cooling ceiling with capillary tube system **Sensor line extendable up to:** 50 m with 2x0.5 mm^2 **Scope of delivery:** sensor, 2 clips for cooling pad, 2 cable ties	
TPS 3 	SN120000	**Mounting / attachment:** attach to pipe by means of cable ties **Use:** pipe systems transporting cold water **Sensor line extendible up to:** 50 m with 2x0.5 mm^2 **Scope of delivery:** sensor, 2 cable ties	

ELECTRONIC CLIMATE CONTROLLER FOR COOLING CEILINGS, KTRRB

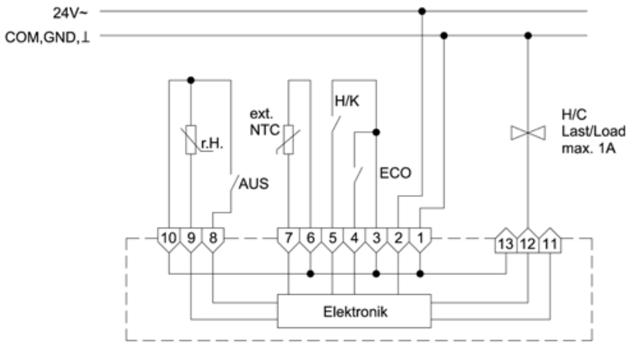
SURFACE-MOUNTED INSTALLATION – DESIGN BERLIN 2000

ILLUSTRATIONS

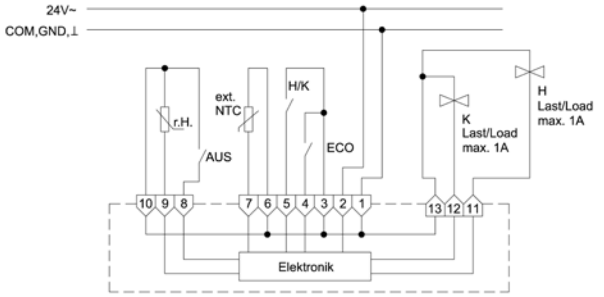
KTRRB


ø60
10
3,8
78,3
77
25,5
83,4

KTRRB-052.24x connection in a 2-pipe system

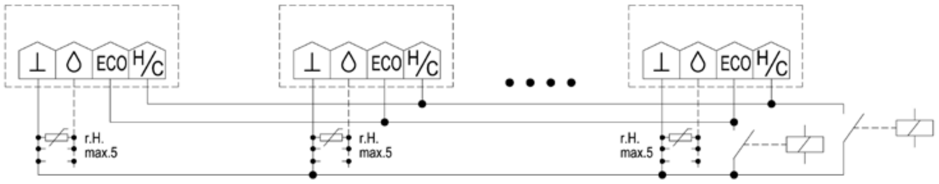

24V~
COM,GND,⊥
r.H.
ext.
NTC
AUS
H/K
ECO
H/C
Last/Load
max. 1A
10
9
8
7
6
5
4
3
2
1
13
12
11
Elektronik

KTRRB-052.24x connection in a 4-pipe system


24V~
COM,GND,⊥
r.H.
ext.
NTC
AUS
H/K
ECO
K
Last/Load
max. 1A
H
Last/Load
max. 1A
10
9
8
7
6
5
4
3
2
1
13
12
11
Elektronik

Important note:
The inflow channels of TPS-1 and TPS-2 are closed at the factory to avoid dirtying during assembly. After assembly, they must be shortened with a knife until they are flush with the wall or ceiling to ensure air circulation. The air ducts should be arranged such that soiling during operation is avoided. It is important that the air surrounding the sensor has the same temperature as the room air to be cooled. If the humidity and temperature of the air to be cooled (ceiling cooling system) is different from that of the air surrounding the sensor, condensation may be detected prematurely or too late. As regards TPS-3, contact with the PCB paths must be avoided to prevent long-term corrosion.

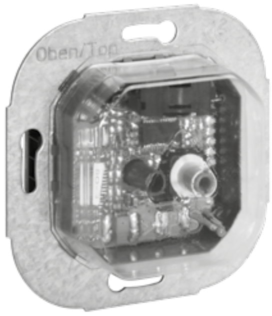
Attention in case of sensor extension:
laying parallel to conductors carrying a mains voltage can result in faults. The use of shielded conductors reduces sensitivity to electromagnetic fields.


⊥
ECO
H/C
r.H.
max.5
⊥
ECO
H/C
r.H.
max.5
⊥
ECO
H/C
r.H.
max.5

Parallel wiring for heating / cooling changeover and / or ECO for several controllers (max. 20 controllers)

ELECTRONIC CLIMATE CONTROLLER FOR COOLING CEILINGS, KTRRU

– WITH INTERNAL AND EXTERNAL (OPTIONAL) TEMPERATURE SENSOR – FLUSH-MOUNTED INSTALLATION – DESIGN BERLIN UP



TECHNICAL DATA

Design:	Berlin UP
Housing material:	PC plastic
Operating voltage:	24 VAC / 50 Hz, 24 VDC
Ambient temperature:	0 … 40 °C
Storage temperature:	−20 … +70 °C
Permissible atmospheric humidity:	max. 95% rel. humidity, non-condensing
Electrical connection:	screw-type terminals
Protection rating:	IP 30
Protection class:	III
Safety and EMC:	according to DIN EN 60730
Average power consumption:	approx. 0.6 W (1 VA)
Max. switching current:	1 A
Max. switching voltage:	24 VAC / 50 Hz, 24 VDC
Min. switching voltage:	24 VAC / 50 Hz, 24 VDC
Switching power:	24 W
Switching element:	relay
Switching contact:	NO contact
Output signal:	switching, 24 VAC / 50 Hz, 24 VDC
Sensor:	NTC internal, optional external ‘Sensor 2’*
ECO contact:	when the contact is closed, the ECO function is actuated (+/– 3 K)
Control function:	heating and / or cooling, cooling interruption upon condensation of the dew point sensor, frost protection function in the switched-off condition
Control range:	13 … 29 °C
Setting range:	−8 … +8 °C
Hysteresis:	approx. 1 K
Neutral zone:	approx. 2 K
General features:	single-room climate controller; optional external dew point sensor; ECO function; ‘heating / cooling / cooling interruption due to condensation / off’ display; mechanical range restriction; relative scale; external setting
Pipe system compatibility:	2-pipe and 4-pipe

APPLICATION

For heating / cooling control of 2- and 4-pipe systems used in hotels, homes and offices.

The unit can control up to 5 valve actuators (24 V~ normally closed) per output. The controllers are configured for 2-pipe or 4-pipe operation by means of a jumper. In 2-pipe operation, the controller is operated with a common heating / cooling output, whose mode of operation action can be toggled by means of an external contact (changeover contact). Connection of TPS dew point sensors is possible (max. 5 of them in parallel). Condensate formation at the TPS can result in the cooling valve getting closed.

It is possible to actuate the energy saving (ECO) function via an external contact.

In the ‘off’ switch position, the room frost protection function is activated (when the temperature drops below 5 °C, all valves are forced open).

External flow sensor (H / C sensor): for automatic switching of the controller to heating or cooling mode depending on the inflow temperature (‘Sensor 2’); alternatively, this input can be used as an H / C changeover contact.

TYPE / IMAGE	ITEM NO.	FEATURES	EURO / PG
KTRRU-052.245#00 	UA210401	**General features:** ‘off with frost protection monitoring’ operating mode; **‘off / comfort / ECO’ switch** **Surface finish:** depending on the cover set selected **Housing colour:** depending on the cover set selected **Mounting / attachment:** in flush-mounted socket – adaptable with 50x50 mm or 55x55 mm cover set in almost all surface switch ranges (deep flush-mounted socket recommended) **Accessories:** cover sets are offered in several design variants (see ‘Overview’, and are not included in the scope of delivery. **Suitable set no.:** JZ-007.xxx, e.g.: cover set 50x50 mm, pure white, glossy: JZ-007.000 cover set 55x55 mm, pure white, glossy: JZ-007.100 **Scope of delivery:** controller, protective cap If the functions of the ‘off / comfort / eco’ switch are not required, JZ-008.xxx cover sets can be used instead (in switch position comfort).	

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* An internal trimming potentiometer can be used to select whether control should be based on the internal (left stop) or external sensor (right stop). In the intermediate positions, if both sensors are used, a weighting is applied to the internal room sensor and the external radiation sensor. The weighting allows for compensation of different structural conditions such as large window areas or cardinal directions. For very slow controlled systems, it is recommended to assign a higher weighting to the radiation sensor than to the internal room sensor.

Accessories: suitable valve actuators ZBOOA-040.100, dew point sensor TPS 1 / TPS 2 / TPS 3, suitable external sensors (‘Sensor 2’); see ‘Sensor Technology’.

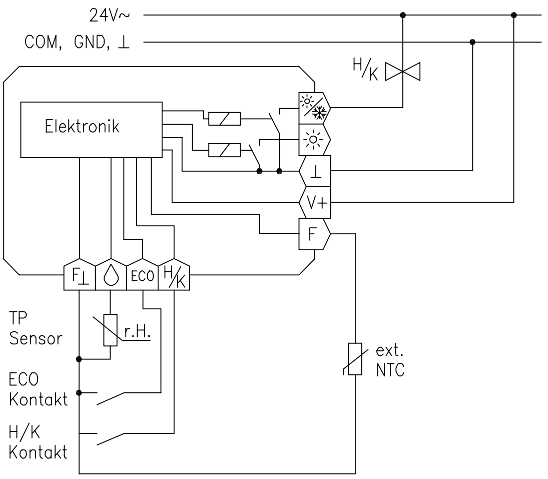
ELECTRONIC CLIMATE CONTROLLER FOR COOLING CEILINGS, KTRRU

– WITH INTERNAL AND EXTERNAL TEMPERATURE SENSOR – FLUSH-MOUNTED INSTALLATION – DESIGN BERLIN UP

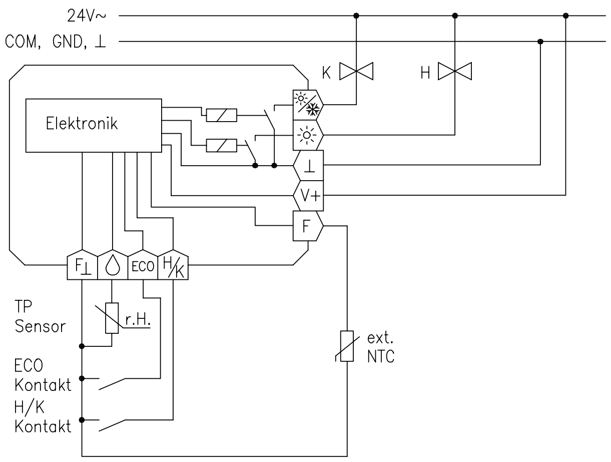
TYPE / IMAGE	ITEM NO.	FEATURES	EURO / PG
JZ-090.900 	VV000025	**General features:** alre frame ‘Berlin’ (neutral) for all flush-mounted controllers with 50x50 mm cover **Design:** Berlin **Surface finish:** glossy **Housing colour:** pure white, like RAL 9010 **Housing material:** PC plastic	
JZ-090.100	VV000048	like JZ-090.900, but for all flush-mounted controllers in combination with 55x55 mm cover	
JZ-090.910 	VV000010	**General features:** alre frame ‘Berlin’ (neutral) for all flush-mounted controllers with cover 50x50 mm **Design:** Berlin **Surface finish:** glossy **Housing colour:** pearl white, like RAL 1013 **Housing material:** PC plastic	

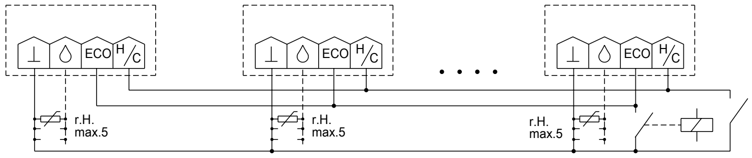
ILLUSTRATIONS

Circuit diagram for KTRRU-052.245 in 2-pipe system


24V~
COM, GND, ⊥
H/K
Elektronik
⊥
V+
F
F⊥
ECO
H/K
TP
Sensor
r.H.
ECO
Kontakt
H/K
Kontakt
ext.
NTC

Circuit diagram for KTRRU-052.245 in 4-pipe system


24V~
COM, GND, ⊥
K
H
Elektronik
⊥
V+
F
F⊥
ECO
H/K
TP
Sensor
r.H.
ECO
Kontakt
H/K
Kontakt
ext.
NTC


⊥
ECO
H/C
r.H.
max.5
. . . .

Parallel wiring for heating / cooling changeover and / or ECO for several controllers (max. 20 controllers)

ALRE FLUSH-MOUNTED RANGE (COVER SETS)

ALL BASIC TYPES AND SUITABLE **50 X 50 MM** COVER SETS

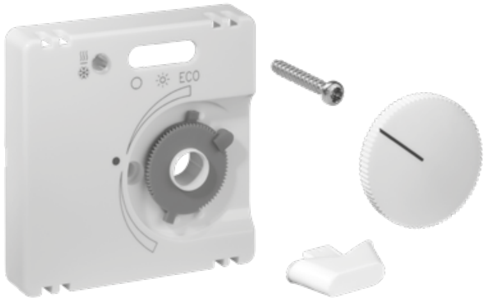
BASIC TYPE	50x50 mm cover set **PURE WHITE (RAL 9010) GLOSSY** (JZ-xxx.000)		50x50 mm cover set **PURE WHITE (RAL 9010) MATT** (JZ-xxx.001)		50x50 mm cover set **PEARL WHITE (RAL 1013) GLOSSY** (JZ-xxx.010)		50x50 mm cover set **TRAFFIC/STUDIO WHITE (RAL 9016) GLOSSY** (JZ-xxx.020)		**EURO/ PG**
	Cover set	Item no.	Cover set	Item no.	Cover set	Item no.	Cover set	Item no.	
KTRRU-052.245#00	JZ-00**7**.000	UN990022	JZ-00**7**.001	UN990024	JZ-00**7**.010	UN990026	JZ-00**7**.020	UN990080	
Cover sets for function without switch	JZ-00**8**.000	UN990021	JZ-00**8**.001	UN990023	JZ-00**8**.010	UN990025	JZ-00**8**.020	UN990079	
FHY 101.060#00	JZ-0**21**.000	UN990039	JZ-0**21**.001	UN990044	JZ-0**21**.010	UN990049	JZ-0**21**.020	UN990081	
FRAMES									
alre frame	JZ-090.900	VV000025			JZ-090.910	VV000010			

In a flush-mounted socket, it can be adapted to fit virtually any surface switch range.

ILLUSTRATIONS

alre frame ‘Berlin’ (JZ-090.900)

Cover set (example), individually foil-wrapped



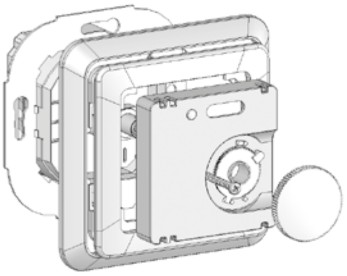
ALL BASIC TYPES AND SUITABLE **55 X 55 MM** COVER SETS

BASIC TYPE	55x55 mm cover set **PURE WHITE (RAL 9010) GLOSSY** (JZ-xxx.000)		55x55 mm cover set **PURE WHITE (RAL 9010) MATT** (JZ-xxx.001)		55x55 mm cover set **PEARL WHITE (RAL 1013) GLOSSY** (JZ-xxx.010)		55x55 mm cover set **TRAFFIC/STUDIO WHITE (RAL 9016) GLOSSY** (JZ-xxx.020)		**EURO/ PG**
	Cover set	Item no.	Cover set	Item no.	Cover set	Item no.	Cover set	Item no.	
KTRRU-052.245#00	JZ-00**7**.100	UN990028	JZ-00**7**.101	UN990030	JZ-00**7**.110	UN990032	JZ-00**7**.120	UN990095	
Cover sets for function without switch	JZ-00**8**.100	UN990027	JZ-00**8**.101	UN990029	JZ-00**8**.110	UN990031	JZ-00**8**.120	UN990094	
FHY 101.060#00	JZ-0**21**.100	UN990054	JZ-0**21**.101	UN990059	JZ-0**21**.110	UN990064	JZ-0**21**.120	UN990096	
FRAMES									
alre frame	JZ-090.100	VV000048							

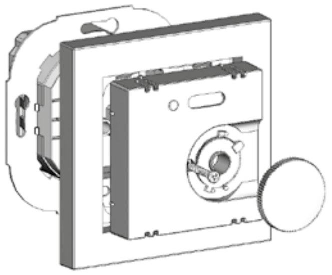
Can be adapted to fit many surface switch ranges in flush-mounted sockets.

ILLUSTRATIONS

KTRRU with 50x50 insert frame



KTRRU without 55x55 insert frame



ADAPTATION OF ALRE FLUSH-MOUNTED CONTROLLERS

MANUFACTURER	**RANGE**	**COLOUR RAL 9010** (surface finish)	**ADAPTATION** using '55x55' or BJ cover sets possible (without insert frame)	Only **ADAPTATION** with '50x50' cover set requires an insert frame from the manufacturer
BERKER	S.1	polar white (matt)	x	1109 19 19
BERKER	S.1	polar white (glossy)	x	1109 90 89
BERKER	Arsys	polar white (glossy)		1108 01 69
BERKER	B.3	aluminium / polar white (matt)	x	1109 19 19
BERKER	B.3	aluminium / polar white (glossy)	x	1109 90 89
BERKER	B.7	glass / polar white (matt)	x	1109 19 19
BERKER	B.7	glass / polar white (glossy)	x	1109 90 89
BERKER	Q.1 / Q.3	polar white (velvet)		1109 60 79
BERKER	K.1	polar white (glossy)		1108 71 09
BUSCH-JAEGER	Reflex SI / SI Linear	alpine white (glossy)		1746-214-101
BUSCH-JAEGER	Busch-balance SI	alpine white (glossy)	x	1746-914-101
BUSCH-JAEGER	impuls	alpine white (glossy)		1746 / 10-74
BUSCH-JAEGER	solo / future linear / axcent / etc.	studio white – see RAL 9016 below		
Elso	Joy	pure white (glossy)	x	363084
Elso	Fashion / Riva / Scala	pure white (glossy)		203084
GIRA	surface switch	pure white (glossy)		0282 112
GIRA (System 55)	Standard / E2	pure white (semi-gloss)	x	0282 27
GIRA (System 55)	Standard / E2 / E3	pure white (glossy)	x	0282 03
GIRA (System 55)	E22	pure white (glossy)	x	0282 03
GIRA (System 55)	Event	pure white (semi-gloss) + opaque…	x	0282 27
GIRA (System 55)	Event	pure white (glossy) + opaque…	x	0282 03
GIRA (System 55)	Esprit	pure white (semi-gloss) + glass, aluminium…	x	0282 27
GIRA (System 55)	Esprit	pure white (glossy) + glass, aluminium…	x	0282 03
GIRA	S-Color	pure white (high-gloss)		0282 40
JUNG	CD 500 / CD plus	alpine white (glossy)		CD 590 Z WW
JUNG	A 500 / A 550 / AS 500 / A plus / A flow	alpine white (glossy)	x	A 590 Z WW
JUNG	LS 990	alpine white (glossy)		LS 961 Z WW
JUNG	LS plus	alpine white (glass)		LS 961 Z WW
JUNG	A creation	alpine white (glossy)	x	A 590 Z WW
JUNG	LS Design	alpine white (glossy)		LS 961 Z WW
MERTEN (System M)	M-Smart, M-Plan, M-Pure	polar white (matt)	x	5181 19
MERTEN (System M)	M-Smart, M-Plan, M-Pure	polar white (glossy)	x	5185 19
MERTEN (System Basis)	1-M / Atelier-M	polar white (glossy)	x	5185 19
MERTEN (Surface System)	Artec / Antik	polar white (glossy)		5160 99
MERTEN	1-M / M-Smart / M-Plan / M-Pure / D-Life	active white – see RAL 9016 below or product finder		
PEHA	Standard	pure white (glossy)		80.670.02 ZV
PEHA	Dialog	pure white (glossy)		95.670.02 ZV
PEHA	Aura	pure white (matt) / glass		20.670.02 ZV
PEHA	Badora	pure white (glossy)		11.670.02 ZV

MANUFACTURER	**RANGE**	**COLOUR RAL 9016** (surface finish)	**ADAPTATION** using '55x55' or 'BJ' cover sets possible (without insert frame)	Only **ADAPTATION** with '50x50' cover set requires an insert frame from the manufacturer
BUSCH-JAEGER	solo / future / future linear	studio white (RAL 9016, glossy)		1746 / 10-84
BUSCH-JAEGER	future linear	studio white (RAL 9016 matt)		1746 / 10-884
BUSCH-JAEGER	impuls	studio white (RAL 9016 matt)		1746 / 10-774
BUSCH-JAEGER	axcent	studio white (RAL 9016, glossy)		1746 / 10-84
BUSCH-JAEGER	carat (glass, bronze, gold)	studio white (RAL 9016, glossy)		1746 / 10-84
BUSCH-JAEGER	alpha (nea / exclusive *)	studio white (RAL 9016, glossy)		1746 / 10-24G
BUSCH-JAEGER	alpha (nea / exclusive *)	studio white (RAL 9016 matt)		1746 / 10-24
MERTEN	M-Smart, M-Plan, M-Pure	active white (RAL 9016, glossy)	x	5185 25
MERTEN	1-M / Atelier-M	active white (RAL 9016, glossy)	x	5185 25
MERTEN	D-Life	lotus white (RAL 9016)		MEG4500-6035
PEHA	Standard	arctic		D 80.670 ZV AW

*) During assembly, you need to remove 4 plastic tabs located at the rear of the frame

NOTE: Most switch ranges are designed in a colour similar to RAL 1013, 9016 or 1013, although different switch manufacturers use different designations for this colour. Coloured, glass and aluminium frames are also combined with white jacks or plugs so that controllers with white covers can also be integrated into these frames. Check the precise application in each individual case. The frames have different surface qualities (matt / glossy). For design reasons, the cover of the controller should have the same quality as the frame. We accept no liability for slight variations in colour and surface finish or for accuracy of fit. When installing devices into multi frames, always assemble the temperature controllers at the lowermost position.

'50x50 controller': The housing covers of the 50x50 controllers are 50x50 mm in size. Using a 50x50-mm insert frame, they can be integrated into nearly all light switch ranges in accordance with DIN 49075. The 50x50 mm insert frames must be ordered from the light switch manufacturer or from a wholesaler. The order number of the insert frame corresponding to the switch range in question can be found in the column 'Only for adaptation with '50x50' cover set'.

'55x55 controller': The housing covers of the 55x55 controllers are 55x55 mm in size. Many light switch ranges have inner dimensions of 55x55 mm. Therefore, the 55x55 controllers can be installed directly in the light switch frame without the use of an insert frame. See the column 'Adaptation with 55x55 cover set' to determine whether the 55x55 controller fits in the given light switch model (x).

All information regarding switch manufacturers' product lines and item numbers was last updated in 12 / 2022 | No liability is assumed for the information provided. | Technical specifications subject to change.

ELECTRONIC CLIMATE CONTROLLER WITH TIMER KTRRUU – 230 VAC

FLUSH-MOUNTED INSTALLATION – DESIGN BERLIN UP

TECHNICAL DATA

Design:	Berlin UP
Housing material:	PC, PMMA, ABS plastic
Ambient temperature:	0 … 40 °C
Storage temperature:	−20 … +70 °C
Permissible atmospheric humidity:	max. 95% rel. humidity, non-condensing
Protection rating:	IP 30
Safety and EMC:	according to DIN EN 60730
Max. power consumption:	approx. 1 W (2.2 VA)
Max. switching current:	3 (0.5) A each
Switching element:	2 relays
Switching contact:	2 NO contacts
Output signal:	Switching, analogue 0 … 10 V max. 5 mA for activating an rpm-controlled fan
Sensor:	NTC internal, optional external 'Sensor 2'*
External flow sensor (H / C sensor):	For automatic switching of the controller to heating or cooling mode depending on the inflow temperature ('Sensor 2'); alternatively, this input can be used as an H / C changeover contact
ECO contact:	upon closing the contact, the ECO function is actuated
Control range:	5 … 40 °C
Setting range:	standard setting range for heating (5 … 30 °C), second setting range for cooling (18 … 40 °C)
Hysteresis:	approx. 1 K
Neutral zone:	adjustable
Display type:	illuminated graphical display
Pipe system compatibility:	2-pipe and 4-pipe

APPLICATION

Flush-mounted controller with timer function for heating/cooling regulation of 2- and 4-pipe systems used in hotels, homes and offices. The adaptation takes place in a menu.

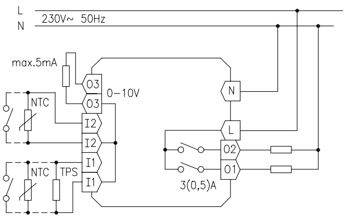
The unit can control up to 5 valve actuators (normally open or normally closed) per output. In 2-pipe operation, the operating mode can be changed via an external contact (changeover) or a temperature sensor. The clock can serve as a master for other controllers for switching to ECO mode.

It is possible to activate the energy saving (ECO) or frost protection (OFF) functions via an external contact. Alternatively, the controller's inputs can be configured to connect with an external temperature sensor or dew point sensor (TPS).

A 0 – 10 V interface can be used to control the speed of a fan **(EC fan)**.

General:
digital surface switch single-room climate controller with timer; optional external dew point sensor; ECO function, ECO value adjustable; 'ECO' display; 'on / off' display; 'heating' display; 'cooling' display; 'cooling interruption due to condensation'; digital actual value display; backlighting; operating mode 'off with frost protection monitoring'; child-safe features; facilities; power-reserve (3 days); actual value correction / measured value correction; learning function; emergency operating mode; holiday setting; party setting; automatic adjustment to summer / winter time; external setting; comfortable operation using touch-sensitive buttons with dynamic button assignment.

Special colours as well as the colours anthracite and aluminium are available for projects upon request.

TYPE / IMAGE	ITEM NO.	FEATURES	CIRCUIT DIAGRAM	EURO / PG
KTRRUu 217.456#21 (230 VAC) 	UA220000	**Surface finish:** glossy **Housing colour:** pure white, like RAL 9010 **Operating voltage:** 230 VAC, 50 Hz Electrical connection: pluggable screw-type terminals, voltage supply side 0.75 – 2.5 mm^2, low-voltage side 0.08 – 1.5 mm^2 **Mounting / attachment:** in flush-mounted socket – adaptable with 50x50 mm cover in almost all surface switch ranges (deep flush-mounted socket recommended) **Protection class:** II **Max. switching voltage:** 230 VAC, 50 Hz **Min. switching voltage:** 230 VAC, 50 Hz **Switching power:** 690 W **Output signal:** switching heating, cooling, heating / cooling, ECO, OFF, 230 VAC, 50 Hz; analogue 0 … 10 V (5 mA) for activating an rpm-controlled fan **Scope of delivery:** controller, cover 50x50 mm, pure white (like RAL 9010), glossy, alre frame 'Berlin'	 L N 230V~ 50Hz max.5mA O3 O3 0–10V NTC I2 I2 NTC TPS I1 I1 N L O2 O1 3(0,5)A	

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* A menu setting can be used to select whether control should be based on the internal or external sensor. In the intermediate positions, if both sensors are used, a weighting is applied to the internal room sensor and the external radiation sensor.
The weighting allows for compensation of different structural conditions such as large window areas or cardinal directions. For very slow controlled systems, it is recommended to assign a higher weighting to the radiation sensor than to the internal room sensor.

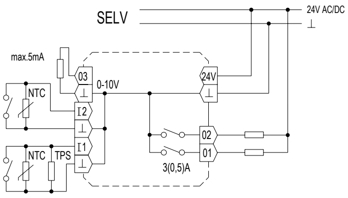
ELECTRONIC CLIMATE CONTROLLER WITH TIMER KTRRUU – 230 VAC

FLUSH-MOUNTED INSTALLATION – DESIGN BERLIN UP

TYPE/IMAGE	ITEM NO.	FEATURES	CIRCUIT DIAGRAM	EURO/PG
KTRRUu 217.456#07 (230 VAC) 	UA220002	Like KTRRUu 217.456#21 but scope of delivery as follows: controller, **50x50** mm cover **pure white** (like RAL 9010), **glossy,** without frame		
KTRRUu 217.456#09 (230 VAC) 	UA220003	Like KTRRUu 217.456#21 but scope of delivery as follows: controller, 50x50 mm cover **pearl white** (like RAL 1013), **glossy,** without frame		
KTRRUu 217.456#27 (230 VAC) 	UA220004	Like KTRRUu 217.456#21 but scope of delivery as follows: controller, **50x50** mm cover **traffic / studio white** (like RAL 9016), **glossy,**without frame		
KTRRUu 217.456#28 (230 VAC) 	UA220007	Like KTRRUu 217.456 but scope of delivery as follows: Controller, cover **for use with BUSCH-JAEGER Reflex SI / SI Linear pure white** (similar to RAL 9010), **glossy,** without frame		
KTRRUu 217.456#55 (230 VAC) 	UA220005	Like KTRRUu 217.456#21 but scope of delivery as follows: controller, **55x55** mm cover **pure white** (like RAL 9010), **glossy,** without frame		
KTRRUu 217.456#56 (230 VAC) 	UA220009	Like KTRRUu 217.456#21 but scope of delivery as follows: controller, **55x55** mm cover **pure white** (like RAL 9010), **matt** without frame		
KTRRUu 217.456#57 (230 VAC) 	UA220006	Like KTRRUu 217.456#21 but scope of delivery as follows: controller, **55x55** mm cover **pearl white** (like RAL 1013), **glossy,** without frame		
KTRRUu 217.456#59 (230 VAC) 	UA220008	Like KTRRUu 217.456#21 but scope of delivery as follows: controller, **55x55** mm cover **traffic / studio white** (like RAL 9016), **glossy,** without frame		

ELECTRONIC CLIMATE CONTROLLER WITH TIMER KTRRUU – 24 VAC / VDC

FLUSH-MOUNTED INSTALLATION – DESIGN BERLIN UP

TYPE / IMAGE	ITEM NO.	FEATURES	CIRCUIT DIAGRAM	EURO / PG
KTRRUu 257.456#21 (24 VAC / VDC) 	UA220100	Like KTRRUu 217.456#21 but with: **Operating voltage:** 24 VAC / 50 Hz, 24 VDC **Protection class:** III **Max. switching voltage:** 24 VAC / 50 Hz, 24 VDC **Min. switching voltage:** 24 VAC / 50 Hz, 24 VDC **Switching power:** 72 W **Output signal:** switching heating, cooling, heating / cooling, ECO, OFF, 24 VAC / 50 Hz, 24 VDC, analogue 0 … 10 V (5 mA) to control a speed-controlled fan	 SELV 24V AC/DC ⊥ max.5mA NTC 03 0-10V 24V I2 NTC TPS I1 02 01 3(0,5)A	
KTRRUu 257.456#07 (24 VAC / VDC) 	UA220103	Like KTRRUu 257.456#21 but scope of delivery as follows: controller, **50x50** mm cover **pure white** (like RAL 9010), **glossy,** without frame		
KTRRUu 257.456#09 (24 VAC / VDC) 	UA220104	Like KTRRUu 257.456#21 but scope of delivery as follows: controller, **50x50** mm cover **pearl white** (like RAL 1013), **glossy,** without frame		
KTRRUu 257.456#27 (24 VAC / VDC) 	UA220105	Like KTRRUu 257.456#21 but scope of delivery as follows: controller, **50x50** mm cover **traffic / studio white** (like RAL 9016), **glossy,**without frame		
KTRRUu 257.456#28 (24 VAC) 	UA220108	Like KTRRUu 257.456#21 but scope of delivery as follows: Controller, cover **for use with BUSCH-JAEGER Reflex SI / SI Linear pure white** (similar to RAL 9010), **glossy,** without frame		
KTRRUu 257.456#55 (24 VAC / VDC) 	UA220106	Like KTRRUu 257.456#21 but scope of delivery as follows: controller, **55x55** mm cover **pure white** (like RAL 9010), **glossy,** without frame		
KTRRUu 257.456#56 (24 VAC / VDC) 	UA220110	Like KTRRUu 257.456#21 but scope of delivery as follows: controller, 55x55 mm cover, **pure white** (like RAL 9010), **matt,** without a frame		
KTRRUu 257.456#57 (24 VAC / VDC) 	UA220107	Like KTRRUu 257.456#21 but scope of delivery as follows: controller, **55x55** mm cover **pearl white** (like RAL 1013), **glossy,** without frame		
KTRRUu 257.456#59 (24 VAC / VDC) 	UA220109	Like KTRRUu 257.456#21 but scope of delivery as follows: controller, **55x55** mm cover **traffic / studio white** (like RAL 9016), **glossy,** without frame		

Accessories: suitable valve actuators ZBOOA-040.100, dew point sensor TPS 1 / TPS 2 / TPS 3, suitable external sensors (‘Sensor 2’); see ‘Sensor Technology’.

ELECTRONIC CLIMATE CONTROLLER WITH TIMER KTRRUU

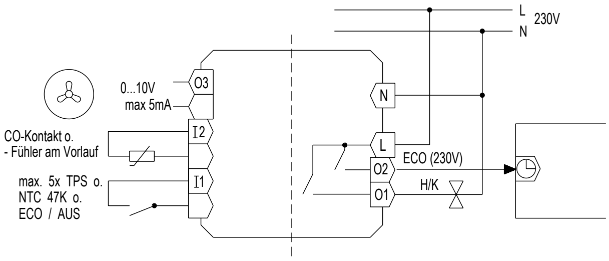
FLUSH-MOUNTED INSTALLATION – DESIGN BERLIN UP

ACCESSORIES	ITEM NO.	FEATURES	EURO/PG
JZ-090.900 	VV000025	**Design:**Berlin **Surface finish:** glossy **Housing colour:** pure white, like RAL 9010 **Housing material:** PC plastic **General features:** alre frame 'Berlin' (neutral) for all flush-mounted controllers with cover 50x50 mm	
JZ-090.100	VV000048	like JZ-090.900, but for all flush-mounted controllers in combination with 55x55 mm cover	
JZ-090.910 	VV000010	**Design:** Berlin **Surface finish:** glossy **Housing colour:** pearl white, like RAL 1013 **Housing material:** PC plastic **General features:** alre frame 'Berlin' (neutral) for all flush-mounted controllers with cover 50x50 mm	

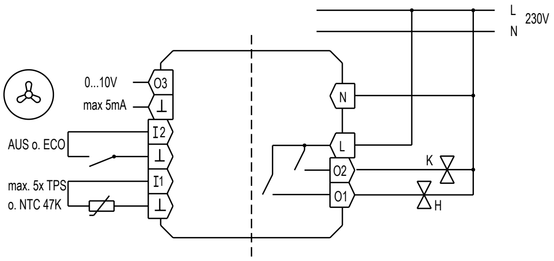
* A menu can be used to select whether control should be based on the internal or external sensor. In the intermediate positions, if both sensors are used, a weighting is applied to the internal room sensor and the external radiation sensor. The weighting allows for compensation of different structural conditions such as large window areas or cardinal directions. For very slow controlled systems, it is recommended to assign a higher weighting to the radiation sensor than to the internal room sensor.

ILLUSTRATIONS

KTRRUu application example – 2-pipe system (230-V version)

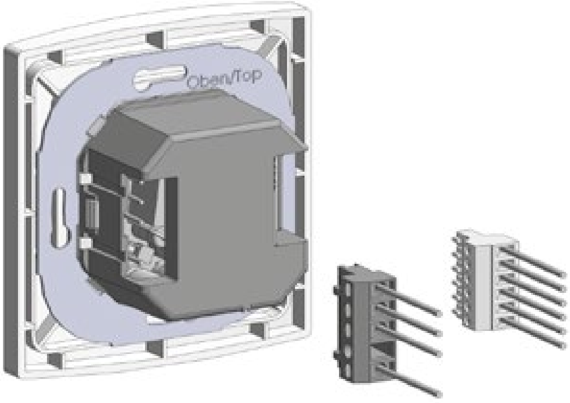

L
N
230V
0...10V
max 5mA
O3
CO-Kontakt o.
- Fühler am Vorlauf
I2
max. 5x TPS o.
NTC 47K o.
ECO / AUS
I1
N
L
O2
O1
ECO (230V)
H/K

KTRRUu application example – 4-pipe system (230-V version)


L
N
230V
0...10V
max 5mA
O3
⊥
AUS o. ECO
I2
⊥
max. 5x TPS
o. NTC 47K
I1
⊥
N
L
O2
O1
K
H

KTRRUu with alre frame 'Berlin'

Pluggable screw-type terminals

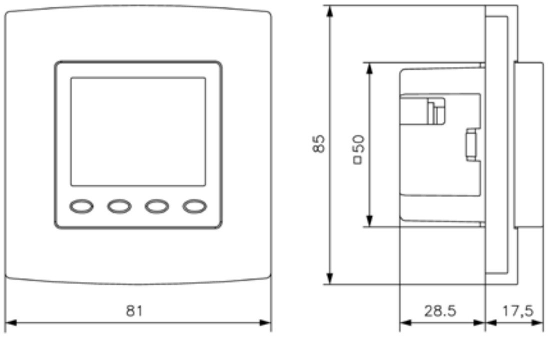


ELECTRONIC CLIMATE CONTROLLER WITH TIMER KTRRUU

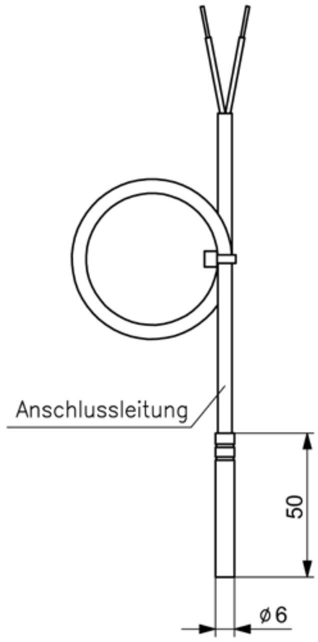
FLUSH-MOUNTED INSTALLATION – DESIGN BERLIN UP

ILLUSTRATIONS

KTRRUu with alre frame 'Berlin'



KF-2



additional benefits:

- Pluggable screw-type terminals facilitate quick and easy assembly
- Illuminated, graphics-capable display
- Automatic adjustment to standard / daylight savings time
- Learn function
- Correction of measurement values
- Configurable display content
- Choice of various languages during installation: German, English, French, Dutch, Polish, Spanish, Czech, Russian
- Configurable inputs and outputs, for example:
  - OFF circuit with frost protection
  - ECO input
  - Dew point sensor input
  - Output: heating / cooling / timer master
- Fan control 0 – 10 V
- Key lock
- Valve protection function
- Configurable control method (PI-PWM or 2-point control)
- Holiday and party function
- Power reserve
- 'Heating operation' indication (LED orange)
- 'Cooling operation' indication (LED blue)

ADAPTATION OF ALRE FLUSH-MOUNTED CONTROLLERS KTRRUU 2X7.456

MANUFACTURER	RANGE	COLOUR RAL 9010 (surface finish)	ADAPTATION in switch ranges (55x55) possible with…	'50X50' ADAPTATION possible with… (insert frame from manufacturer required)
BERKER	S.1	polar white (matt)	KTRRUu 2x7.456#56	not required
BERKER	S.1	polar white (glossy)	KTRRUu 2x7.456#55	not required
BERKER	Arsys	polar white (glossy)		KTRRUu 2x7.456#07 + 1108 01 69
BERKER	B.3	aluminium / polar white (matt)	KTRRUu 2x7.456#56	not required
BERKER	B.3	aluminium / polar white (glossy)	KTRRUu 2x7.456#55	not required
BERKER	B.7	glass / polar white (matt)	KTRRUu 2x7.456#56	not required
BERKER	B.7	glass / polar white (glossy)	KTRRUu 2x7.456#55	not required
BERKER	K.1	polar white (glossy)		KTRRUu 2x7.456#07 + 1108 71 09
BUSCH-JAEGER	Reflex SI / SI Linear	alpine white (glossy)	KTRRUu 2x7.456#28	not required
BUSCH-JAEGER	Busch-balance SI	alpine white (glossy)	KTRRUu 2x7.456#55	not required
BUSCH-JAEGER	impuls	alpine white (glossy)		KTRRUu 2x7.456#07 + 1746/10-74
BUSCH-JAEGER	solo / future / axcent etc.	studio white – see RAL 9016 below		
Elso	Joy	pure white (glossy)	KTRRUu 2x7.456#55	not required
Elso	Fashion/Riva/Scala	pure white (glossy)		KTRRUu 2x7.456#07 + (203084)
GIRA	surface switch	pure white (glossy)		KTRRUu 2x7.456#07 + 0282 112
GIRA (System 55)	Standard / E2	pure white (semi-gloss)	KTRRUu 2x7.456#56	not required
GIRA (System 55)	Standard / E2 / E3	pure white (glossy)	KTRRUu 2x7.456#55	not required
GIRA (System 55)	E22	pure white (glossy)	KTRRUu 2x7.456#55	not required
GIRA (System 55)	Event	pure white (semi-gloss) + opaque…	KTRRUu 2x7.456#56	not required
GIRA (System 55)	Event	pure white (glossy) + opaque…	KTRRUu 2x7.456#55	not required
GIRA (System 55)	Esprit	pure white (semi-gloss) + glass, aluminium…	KTRRUu 2x7.456#56	not required
GIRA (System 55)	Esprit	pure white (glossy) + glass, aluminium…	KTRRUu 2x7.456#55	not required
GIRA	S-Color	pure white (high-gloss)		KTRRUu 2x7.456#07 + 0282 40
JUNG	CD 500 / CD plus	alpine white (glossy)		KTRRUu 2x7.456#07 + CD 590 Z WW
JUNG	A 500 / A 550 / AS 500 / A plus / A flow	alpine white (glossy)	KTRRUu 2x7.456#55	not required
JUNG	LS 990	alpine white (glossy)		KTRRUu 2x7.456#07 + LS 961 Z WW
JUNG	LS plus	alpine white (glass)		KTRRUu 2x7.456#07 + LS 961 Z WW
JUNG	A creation	alpine white (glossy)	KTRRUu 2x7.456#55	not required
JUNG	LS Design	alpine white (glossy)		KTRRUu 2x7.456#07 + LS 961 Z WW
MERTEN (System M)	M-Smart, M-Plan, M-Pure	polar white (matt)	KTRRUu 2x7.456#56	not required
MERTEN (System M)	M-Smart, M-Plan, M-Creativ, M-Pure	polar white (glossy)	KTRRUu 2x7.456#55	not required
MERTEN (System Basis)	1-M / Atelier-M	polar white (glossy)	KTRRUu 2x7.456#55	not required
MERTEN (Surface System)	Artec / Antik	polar white (glossy)		KTRRUu 2x7.456#07 + 5160 99
MERTEN	1-M / M-Smart / M-Plan / M-Pure / D-Life	active white – see RAL 9016 below		
PEHA	Standard	pure white (glossy)		KTRRUu 2x7.456#07 + 80.670.02 ZV
PEHA	Dialog	pure white (glossy)		KTRRUu 2x7.456#07 + 95.670.02 ZV
PEHA	Aura	pure white (matt) / glass		KTRRUu 2x7.456#07 + 20.670.02 ZV
PEHA	Badora	pure white (glossy)		KTRRUu 2x7.456#07 + 11.670.02 ZV

MANUFACTURER	RANGE	COLOUR RAL 9016 (surface finish)	ADAPTATION in switch ranges (55x55) possible with…	To ADAPT KTRRUu in size '50x50', an insert frame from the manufacturer is required
BUSCH-JAEGER	solo / future / future linear	studio white (RAL 9016, glossy)		KTRRUu 2x7.456#27 + 1746/10-84
BUSCH-JAEGER	axcent	studio white (RAL 9016, glossy)		KTRRUu 2x7.456#27 + 1746/10-84
BUSCH-JAEGER	carat (glass, bronze, gold)	studio white (RAL 9016)		KTRRUu 2x7.456#27 + 1746/10-84
BUSCH-JAEGER	alpha (nea / exclusive *)	studio white (RAL 9016, glossy)		KTRRUu 2x7.456#27 + 1746/10-24G
MERTEN	M-Smart, M-Plan, M-Pure	active white (RAL 9016, glossy)	KTRRUu 2x7.456#59	not required
MERTEN	1-M / Atelier-M	active white (RAL 9016, glossy)	KTRRUu 2x7.456#59	not required
MERTEN	D-Life	lotus white (RAL 9016)		KTRRUu 2x7.456#27 + MEG4500-6035
PEHA	Standard	arctic		KTRRUu 2x7.456#27 + D 80.670 ZV AW

*) During assembly, you need to remove 4 plastic tabs located at the rear of the frame.

NOTE: Most light switches are designed in the colour 'like RAL 9010', although different switch manufacturers use different designations for this colour. Coloured, glass and aluminium frames are also combined with white jacks or plugs so that controllers with white covers can also be integrated into these frames. Check the precise application in each individual case. The frames have different surface qualities (matt / glossy). For design reasons, the cover of the controller should have the same quality as the frame. We accept no liability for slight variations in colour and surface finish or for accuracy of fit. When installing devices into multi frames, always assemble the temperature controllers at the lowermost position.

'50x50 controller': The housing covers of the 50x50 controllers are 50x50 mm in size. Using a 50x50 mm insert frame, they can be integrated into nearly all light switch ranges in accordance with DIN 49075. The 50x50 mm insert frames must be ordered from the light switch manufacturer or from a wholesaler. The order number of the insert frame corresponding to the switch range in question can be found in the column 'For adaptation of KTRRUu into size '50x50".

'55x55 controller': The housing covers of the 55x55 controllers are 55x55 mm in size. Many light switch ranges have inner dimensions of 55x55 mm. Therefore, the 55x55 controllers can be installed directly in the light switch frame without the use of an insert frame. See the column 'Adaptation in switch range (55x55)' to determine whether the 55x55 controller fits in the given light switch range (KTRRUu 2x7.456#xx).

All information regarding switch manufacturers' product lines and item numbers was last updated in 12 / 2022 | No liability is assumed for the information provided. | Technical specifications subject to change.

CONTINUOUS ELECTRONIC CLIMATE CONTROLLER, KTRVB

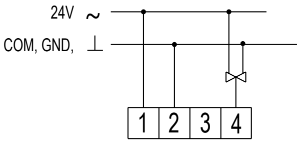
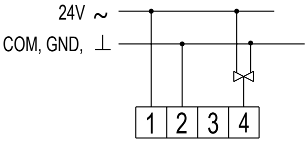
SURFACE-MOUNTED INSTALLATION – DESIGN BERLIN 2000

TECHNICAL DATA

Design:	Berlin 2000
Surface finish:	matt
Housing colour:	pure white, like RAL 9010
Housing material:	ABS plastic
Storage temperature:	−20 … +70 °C
Operating voltage:	24 VDC, 24 VAC, 50 Hz
Permissible atmospheric humidity:	max. 95% rel. humidity, non-condensing
Electrical connection:	screw-type terminals
Mounting / attachment:	surface / wall mounting
Protection rating:	IP 30
Protection class:	III
Safety and EMC:	according to DIN EN 60730
Switching element:	electronic with analogue output signal
General features:	climate controller for individual room control with proportionally controlled valve; mechanical range restriction; external setting

APPLICATION

Room temperature controller for continuous control of valve actuators. Controller for 2-pipe systems (1-duct), 4-pipe systems (2-duct) and mixing chambers.

TYPE / IMAGE	ITEM NO.	FEATURES	CIRCUIT DIAGRAM	EURO / PG
KTRVB-048.100 	DA450000	**General features:** scale: degrees Celsius **Ambient temperature:** 0 … 50 °C **Output signal:** consistently 0 to 10 V or 10 to 0 V (can be switched using a jumper), max. 5 mA **Sensor:** NTC internal **Control function:**Heating or cooling with adjustable p-band, aligned to 5 V at setpoint temperature **Control range:** 5 … 30 °C **Hysteresis:** 0 K, since control is always via the p-band in the range from +0.5 K … 3 K (adjustable) **Pipe system compatibility:** 2-pipe		
KTRVB-048.200 	DA450100	**General features:** relative scale **Ambient temperature:** 0 … 50 °C **Output signal:** consistently 0 … 10 V or +10 … 0 V (can be switched using a jumper), max. 5 mA **Sensor:** NTC internal **Control function:**Heating or cooling with adjustable p-band, aligned to 5 V at setpoint temperature **Control range:**13 … 29 °C **Setting range:** −3 … +3 K (the pre-set 'zero point' of approx. 21 °C can be adjusted in the machine by + / – 5 K) **Hysteresis:** 0 K, since control is always via the p-band in the range from +0.5 K … 3 K (adjustable) **Pipe system compatibility:** 2-pipe		

CONTINUOUS ELECTRONIC CLIMATE CONTROLLER, KTRVB

SURFACE-MOUNTED INSTALLATION – DESIGN BERLIN 2000

TYPE / IMAGE	ITEM NO.	FEATURES	CIRCUIT DIAGRAM	EURO / PG
KTRVB-052.244 	DA451500	**General features:** external dew point sensor; ECO function; **‘heating / cooling / cooling interruption due to condensation / off’ display; ‘sensor rupture / sensor short-circuit / frost protection’ display;** operating mode ‘off with frost protection monitoring’; relative scale **Ambient temperature:** 0 … 40 °C **Output signal:** consistently 0 … 10 V or 10 … 0 V (can be switched using a jumper), max. 5 mA **Sensor:** NTC internal, optional external ‘Sensor 2’ (see ‘Sensors’)* **External flow sensor (H / C sensor):** for automatic switching of the controller to heating or cooling mode depending on the inflow temperature; alternatively, this input can be used as a ‘Sensor 2’ H / C changeover contact **ECO contact:** upon closing the contact, the ECO function is actuated (in heating mode, the temperature is adjusted down by 3 K and in cooling mode it is adjusted up by 3 K) **Forced switch-off contact:** external switch-off function with frost protection monitoring **Control function:** heating and / or cooling with p-band 1 K, cooling interruption upon condensation of the dew point sensor, frost protection function in ‘off’ state **Control range:** 13 … 29 °C **Setting range:** 21 °C ± 8 K **Hysteresis:** 0 K, since control is always via the p-band in the range from 1 K **Neutral zone:** approx. 2 K **Pipe system compatibility:** 2-pipe and 4-pipe		
KTRVB-052.245 	DA451600	Like KTRRB-052.244 but with **‘off / comfort / ECO’ switch**		

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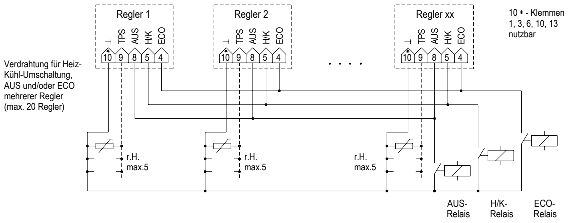
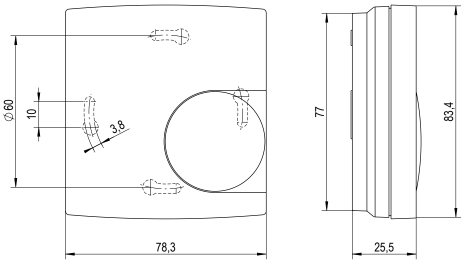
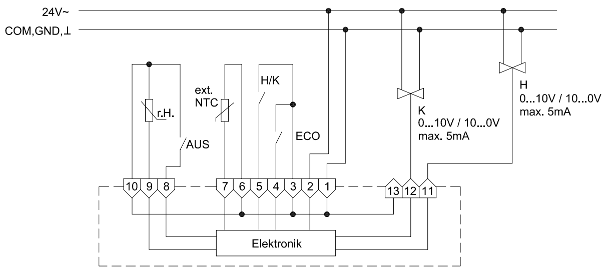
* An internal trimming potentiometer can be used to select whether control should be based on the internal (left stop) or external sensor (right stop). In the intermediate positions, if both sensors are used, a weighting is applied to the internal room sensor and the external radiation sensor. The weighting allows for compensation of different structural conditions such as large window areas or cardinal directions. For very slow controlled systems, it is recommended to assign a higher weighting to the radiation sensor than to the internal room sensor.

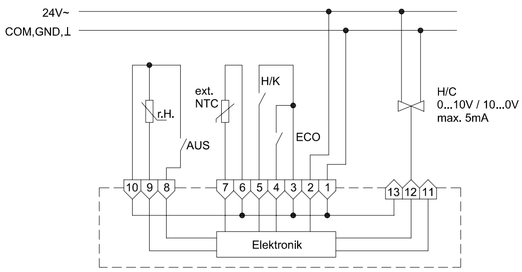
ILLUSTRATIONS

KTRVB


Regler 1
Regler 2
Regler xx
⊥
TPS
AUS
H/K
ECO
10
9
8
5
4
10 * - Klemmen
1, 3, 6, 10, 13
nutzbar
Verdrahtung für Heiz-Kühl-Umschaltung, AUS und/oder ECO mehrerer Regler (max. 20 Regler)
r.H.
max.5
AUS-Relais
H/K-Relais
ECO-Relais


∅ 60
10
3,8
78,3
77
83,4
25,5


24V~
COM,GND,⊥
r.H.
ext.
NTC
AUS
H/K
ECO
K
0...10V / 10...0V
max. 5mA
H
0...10V / 10...0V
max. 5mA
10
9
8
7
6
5
4
3
2
1
13
12
11
Elektronik


24V~
COM,GND,⊥
r.H.
ext.
NTC
AUS
H/K
ECO
H/C
0...10V / 10...0V
max. 5mA
10
9
8
7
6
5
4
3
2
1
13
12
11
Elektronik

ELECTRONIC DEW POINT MONITOR WFRRN
STANDARD RAIL MOUNTING

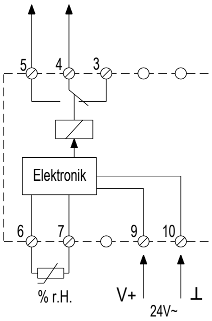
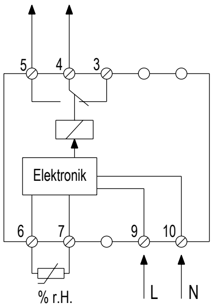
alre
CE
5 4 3
max. 250V~/10(3)A
max. 30V ⎓ /10A
WFRRN-210.018
230V~
%r.H.
L N
6 7 9 10

TECHNICAL DATA

Surface finish:	matt
Housing colour:	light grey, like RAL 7035
Housing material:	PC plastic
Ambient temperature:	0 … 55 °C
Storage temperature:	−20 … +70 °C
Permissible atmospheric humidity:	max. 95% rel. humidity, non-condensing
Electrical connection:	screw-type terminals up to 2.5 mm^2
Mounting / attachment:	standard rail mounting
Protection rating:	IP 20
Safety and EMC:	according to DIN EN 60730
Average power consumption:	approx. 1 VA
Min. switching current:	depending on the switching voltage (min. 0.3 W)
Min. switching voltage:	depending on the switching current (min. 0.3 W)
Switching element:	relay
Switching contact:	toggler, potential-free
Output signal:	switching
Control function:	dew point triggering
Hysteresis:	8 MΩ
Fixed break point:	approx. 98% relative humidity
General features:	‘dew point triggering’ display
Accessories:	dew point sensors (TPS)

APPLICATION

For cooling interruption, when the relative atmospheric humidity exceeds approx. 98%.

TYPE / IMAGE	ITEM NO.	FEATURES	CIRCUIT DIAGRAM	EURO / PG
WFRRN-240.018 	D4780587	**Operating voltage:**24 VDC, 24 VAC, 50 Hz **Protection class:** III **Max. switching current:** 10 (3) A at 48 VAC, 10 A at 30 VDC, 1 A at 60 VDC **Max. switching voltage:** 48 VAC, 50 Hz / 60 VDC **Switching power:** 500 VA at 48 VAC, 300 W at 30 VDC, 60 W at 60 VDC	 5 4 3 Elektronik 6 7 9 10 % r.H. V+ ⊥ 24V~	
WFRRN-210.018 	D4780572	**Operating voltage:** 230 VAC, 50 Hz **Protection class:** II, if properly mounted **Max. switching current:** 10 (3) A at 230 VAC, 10 A at 30 VDC, 1 A at 60 VDC **Max. switching voltage:** 230 VAC, 50 Hz / 60 VDC **Switching power:** 2300 VA at 230 VAC, 300 W at 30 VDC, 60 W at 60 VDC	 5 4 3 Elektronik 6 7 9 10 % r.H. L N	

DEW POINT SENSOR, TPS

TECHNICAL DATA

Storage temperature:	−20 … +70 °C
Sensor wire extendible up to:	50 m with 2x0.5 mm^2
Connecting cable:	10 m
Accessories:	For use with dew point sensors (e.g. WFRRN) or climate controllers with dew point monitoring (KTRRB, KTRRU, KTRRUu, KTRVB, KTFRL, KTFRD)

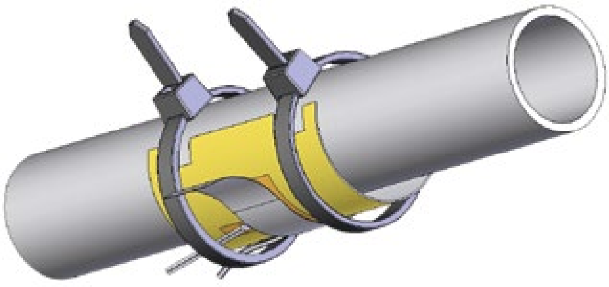
APPLICATION

These dew point sensors were developed in conjunction with alre dew point monitors and cooling ceiling controllers for the specific purpose of detecting and signalling the dew point. In this way, they prevent dripping condensation water from reaching the cooling circuit parts, if installed correctly.

TYPE / IMAGE	ITEM NO.	FEATURES	EURO / PG
TPS 1 	G8000299	**Mounting / attachment:** using clips on cooling ceiling capillary pipe **Use:** Drywall cooling ceiling (plasterboard) with hung up capillary pipe mat, metal cooling ceiling with integrated capillary pipe system **Sensor wire extendible up to:** 50 m with 2x0.5 mm^2 **Scope of delivery:** sensor, 2 clips for cooling pad	
TPS 2 	G8000300	**Mounting / attachment:** using clips on cooling ceiling capillary pipe or cable ties on the pipe **Use:** Pipe systems transporting cold water, plaster cooling ceiling with capillary tube system **Sensor wire extendible up to:** 50 m with 2x0.5 mm^2 **Scope of delivery:** sensor, 2 clips for cooling pad, 2 cable ties	
TPS 3 	SN120000	**Mounting / attachment:** attach to pipe by means of cable ties **Use:** Pipe systems transporting cold water **Sensor wire extendible up to:** 50 m with 2x0.5 mm^2 **Scope of delivery:** sensor, 2 cable ties	

ILLUSTRATIONS

TPS 3



Important note:
The inflow channels of TPS-1 and TPS-2 are closed at the factory to avoid dirtying during assembly. After assembly, they must be shortened with a knife until they are flush with the wall or ceiling to ensure air circulation. The air ducts should be arranged such that soiling during operation is avoided. It is important that the air surrounding the sensor has the same temperature as the room air to be cooled. If the humidity and temperature of the air to be cooled (ceiling cooling system) is different from that of the air surrounding the sensor, condensation may be detected prematurely or too late. As regards TPS-3, contact with the PCB paths must be avoided to prevent long-term corrosion.

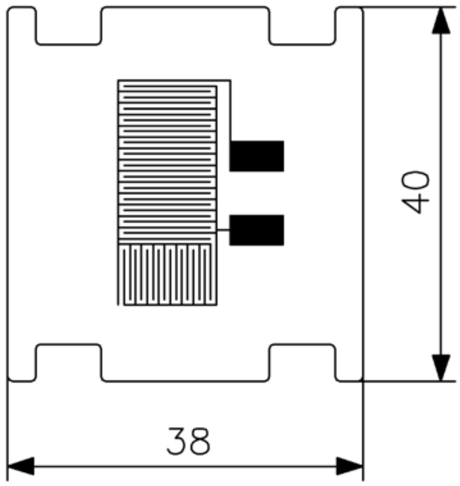
Attention in case of sensor extension: Parallel laying to conductors carrying a mains voltage can result in faults. The use of shielded conductors reduces sensitivity to electromagnetic fields.

Mode of operation – dew point sensor:
if the surface temperature of the dew point sensor is equivalent to the dew point, a microscopic film of moisture forms on its surface. This film changes the resistance value of the dew point sensor to such an extent that the connected controller or monitor detects this change and disables the cooling. In this manner, dripping condensate water at maximum cooling, and hence moisture damage to the building, are avoided. When the dew point sensor dries off again, the resistance value increases and cooling is re-enabled. To ensure that a pending undershooting of the dew point is detected in time, the dew point sensor should be assembled at the point where the dew point is most likely to be reached first along the cooling circuit. Generally, these locations are at the inlet coming into the room and / or near windows. If the place where the dew point is most likely to occur cannot be unambiguously determined, it is possible to connect up to 5 dew point sensors in parallel to one controller or monitor.

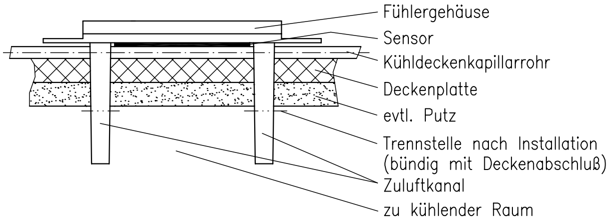
DEW POINT SENSOR, TPS

ILLUSTRATIONS

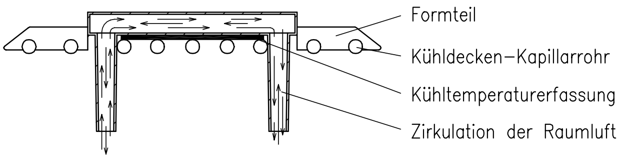
TPS 3



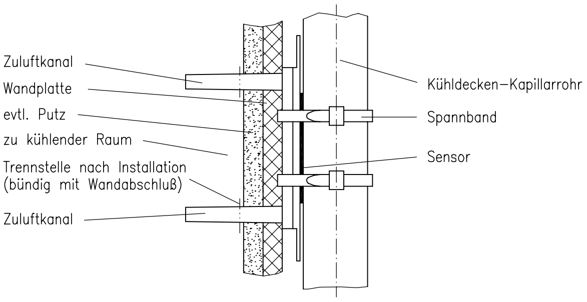
TPS 1


Fühlergehäuse
Sensor
Kühldeckenkapillarrohr
Deckenplatte
evtl. Putz
Trennstelle nach Installation
(bündig mit Deckenabschluß)
Zuluftkanal
zu kühlender Raum

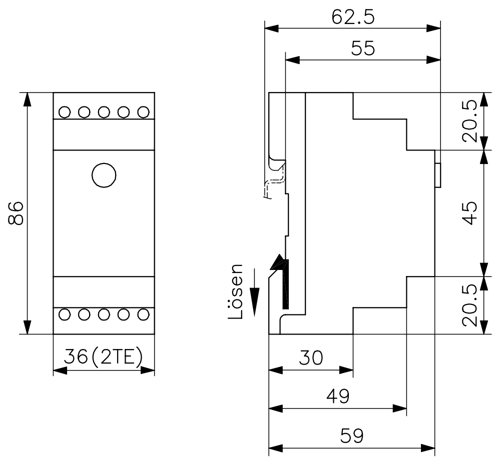
TPS 1


Formteil
Kühldecken–Kapillarrohr
Kühltemperaturerfassung
Zirkulation der Raumluft

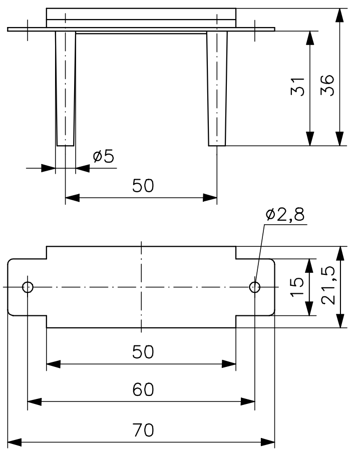
TPS 2


Zuluftkanal
Wandplatte
evtl. Putz
zu kühlender Raum
Trennstelle nach Installation
(bündig mit Wandabschluß)
Zuluftkanal
Kühldecken–Kapillarrohr
Spannband
Sensor

WFRRN


62.5
55
20.5
45
20.5
86
36(2TE)
Lösen
30
49
59

TPS 1 / 2


31
36
ø5
50
ø2,8
15
21,5
50
60
70

MECHANICAL ROOM HYGROSTATS / HYGRO-THERMOSTATS, RFSB, FHY, RKKDSB

SURFACE-MOUNTED INSTALLATION – DESIGN BERLIN 2000 / 3000 / UP

alre
Hygrostat
40
50
60
70
80
90

80
%rH
70
60
50
40
alre

Hygro-Thermostat
alre

TECHNICAL DATA

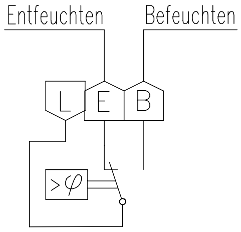
Storage temperature:	−20 … +60 °C (RFHSB-060.xxx – 20 … +70 °C)
Permissible atmospheric humidity:	max. 95% rel. humidity, non-condensing
Electrical connection:	screw-type terminals
Protection rating:	IP 30
Protection class:	II, if properly mounted
Safety and EMC:	according to DIN EN 60730
Min. switching current:	100 mA
Max. switching voltage:	230 VAC, 50 Hz
Min. switching voltage:	24 VAC, 50 Hz
General features:	mechanical range restriction
Other / similar items:	For duct and control cabinet hygrostats, see ‘Plant Engineering’ chapter

APPLICATION

Hygrostat: The room hygrostat is used to monitor and control the relative humidity, e.g., in offices, homes, winter gardens, baths, swimming pools and data centres. The action of the relative humidity on a measuring tape is made to actuate a potential-free changeover contact. The desired value is set by means of the adjusting knob on the front panel. The setting range can be limited.

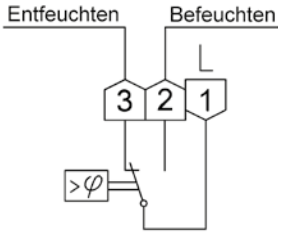
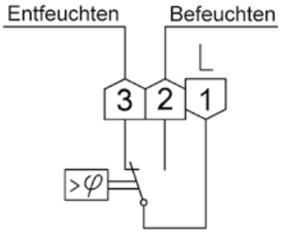
Hygro-thermostat: Monitoring and control of the relative humidity and the temperature in one device.

Note: Observe the wet room distance according to DIN VDE 0100-701!

TYPE / IMAGE	ITEM NO.	FEATURES	CIRCUIT DIAGRAM	EURO / PG
FHY 101.060#00 	UA020004	**General features:** external setting; protective cap; contact hazard protection cover plate **Design:** Berlin flush-mounted **Surface finish:** according to selected cover set **Housing colour:** according to selected cover set **Housing material:** PC plastic **Operating voltage:** no auxiliary energy necessary **Ambient temperature:** 0 … 50 °C **Mounting / attachment:** in flush-mounted socket – adaptable with 50x50 mm or 55x55 mm cover set in almost all surface switch ranges (deep flush-mounted socket recommended) **Max. switching current:** Dehumidifying (terminal E) 5 (0.2) A, humidifying (terminal B) 2 (0.2) A **Switching power:** terminal E: 1150 W, terminal B: 460 W **Switching element:** microswitch **Switching contact:** changeover switch (toggler) **Output signal:** switching **Sensor:** plastic fibres **Control function:** humidifying or de-humidifying **Control range:** 35 … 85% rel. humidity **Hysteresis:** approx. 5% rel. humidity **Accessories:** cover sets are offered in several design variants and are not included in the scope of delivery. **Suitable set no.:** JZ-021.xxx, e.g.: 50x50 mm cover set, pure white, glossy: JZ-021.000 55x55 mm cover set, pure white, glossy: JZ-021.100 **Scope of delivery:** controller, protective cap		

MECHANICAL ROOM HYGROSTATS / HYGRO-THERMOSTATS, RFSB, FHY, RKKDSB

SURFACE-MOUNTED INSTALLATION – DESIGN BERLIN 2000 / 3000 / UP

TYPE / IMAGE	ITEM NO.	FEATURES	CIRCUIT DIAGRAM	EURO / PG
FHY 101.060#21 	UA020003	like FHY 101.060#21 but scope of delivery as follows: controller, alre frame 'Berlin', cover 50x50 mm, pure white (like RAL 9010), glossy		
RFHSB-060.010 	MA020202	**General features:** External setting **Design:** Berlin 2000 **Surface finish:** matt **Housing colour:** pure white, like RAL 9010 **Housing material:** ABS plastic **Operating voltage:** no auxiliary energy necessary **Ambient temperature:** 0 … 60 °C **Mounting / attachment:** surface / wall mounting (4-hole assembly on flush-mounted socket) **Max. switching current:** dehumidifying (terminal 4) 5 (0.2) A, humidifying (terminal 2) 2 (0.2) A **Switching power:** terminal 4: 1150 W, terminal 2: 460 W **Switching element:** microswitch **Switching contact:** changeover switch (toggler) **Output signal:** switching **Sensor:** plastic fibres **Control function:** humidifying or de-humidifying **Control range:** 35 – 85% rel. humidity **Hysteresis:** approx. 7% rel. humidity		
RFHSB-060.011 	MA020203	like RFHSB-060.010, but with internal setting		
RKDSB-171.000 	MA220000	**General features:** 'On / off' switch; external setting **Design:** Berlin 3000 **Surface finish:** matt **Housing colour:** pure white, like RAL 9010 **Housing material:** ABS plastic **Operating voltage:** 24 VAC or 230 VAC selectable **Ambient temperature:** 0 … 50 °C **Mounting / attachment:** surface / wall-mounting or by means of adapter plate on flush-mounted socket **Max. switching current:** dehumidifying (terminal 9) 5 (0.2) A, humidifying (terminal 8) 3 (0.2) A, heating (terminal 1) 10 (4) A at 230 VAC / 1 (1) A at 24 VAC, cooling (terminal 2) 5 (2) A at 230 VAC / 1 (1) A at 24 VAC **Switching power:** terminal 9: 1150 W, terminal 8: 690 W, terminal 1: 2300 W at 230 VAC / 24 W at 24 VAC, terminal 2: 1150 W at 230 VAC / 230 W at 24 VAC **Switching element:** microswitch (hygrostat) / bimetal (thermostat) **Switching contact:** 2x changeover switch (toggler) **Output signal:** switching **Sensor:** plastic fibres for humidity, bimetal for temperature **Control function:** humidifying or de-humidifying, heating or cooling **Control ranges:** Temperature 10 … 35 °C, Humidity 30 … 100% rel. humidity **Hysteresis:** approx. 4% rel. humidity, approx. 1 K at a temperature change of max. 4 K / h **Accessories:** adapter plate flush-mounted socket mounting: JZ-17		

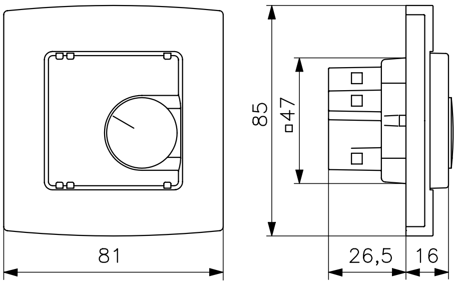
MECHANICAL ROOM HYGROSTATS / HYGRO-THERMOSTATS, RFSB, FHY, RKKDSB

SURFACE-MOUNTED INSTALLATION – DESIGN BERLIN 2000 / 3000 / UP

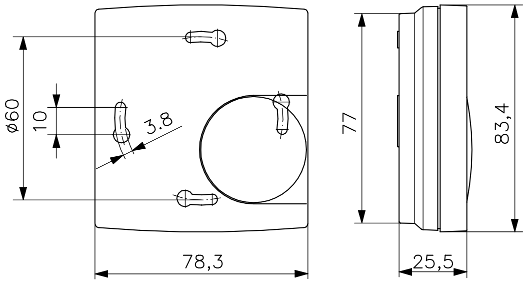
ACCESSORIES	ITEM NO.	FEATURES	EURO / PG
JZ-17 	MN990001	**General features:** Adapter plate for mounting devices on flush-mounted sockets (including fastening screws for mounting the controller on the adapter plate) **Surface finish:** matt **Housing colour:** pure white, like RAL 9010 **Housing material:**ABS plastic	

ILLUSTRATIONS

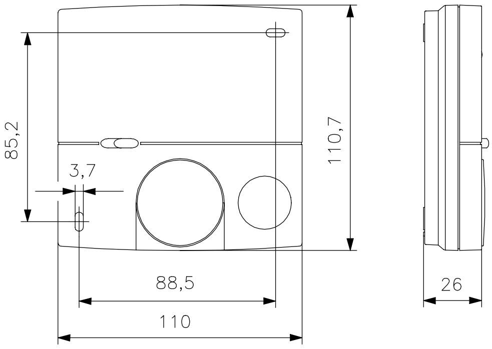
FHY



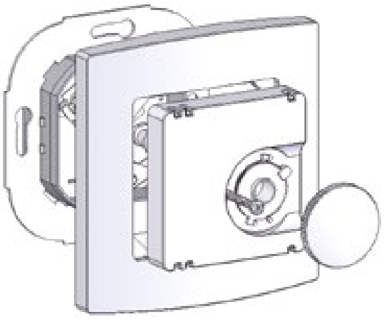
RFHSB



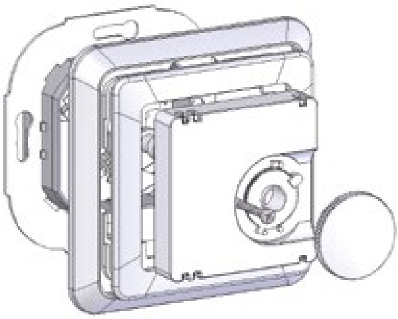
RKDSB



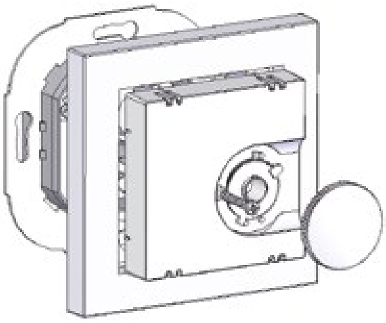
FHY with alre frame ‘Berlin’ (#21 type)



FHY with insert frame



FHY without 55x55 insert frame



TERMINAL STRIP FOR HEATING / COOLING MANIFOLD VOORL

FOR 5 OR 8 ROOM THERMOSTATS

TECHNICAL DATA

Surface finish:	matt
Housing colour:	light grey, like RAL 7035
Housing material:	ABS plastic
Operating voltage:	230 V~
Ambient temperature:	–10 … +50 °C
Storage temperature:	–20 … +70 °C
Permissible atmospheric humidity:	max. 95%, non-condensing
Electrical connection:	screw-type terminals 0.2 mm^2 – 1.5 mm^2
Connectable pump power:	max. 180 VA
Device fuse:	T3,15 / 250 V, Ø 5x20 mm
Mounting / attachment:	surface mounting / wall mounting on a wall using screws or magnetic bases on a magnetic substrate
Protection rating:	IP 20
Protection class:	II, if properly mounted
Max. number of valve actuators:	Number of ducts x4 for each Duct 2, Duct 1 and 2 as well as 5 and 6 combinable Assignment of ducts to rooms as desired

APPLICATION

This device is specifically designed for fixed wiring of 230 VAC single-room temperature controllers and the associated valve actuators for fixed-location attachment.
Switching between heating / cooling is performed via a central contact.

Heating controllers with changeover contact (e.g. RTBSB-201.010) can be connected as controllers.
A master-slave time zone can be formed by using a clock controller.
The time zone can also be switched to ECO function via an external switching contact at terminal U.

The VOORx-318.053 and VOORx-215.053 units have an integrated pump function.

TYPE / IMAGE	ITEM NO.	FEATURES	EURO / PG
VOORL-215.009 	DA490110	**General features:** Terminal strip in housing for wiring up to 5 room thermostats and up to 20 actuators; up to 4 actuators per channel can be connected **Max. switching current:** output 1-5: 3 (1) A **Total of all the outputs (5 channels):** 3 (1) A **Switching power:** total of 920 W **ECO contact:** if clock regulators are used, a time zone can be defined that can be switched to ECO function via an external switching contact on terminal U **Control function:** Heating or cooling	
VOORL-215.053 	DA490310	**As for VOORL-215.009, but including pump module (max. 0.75 A)**	
VOORL-318.009 	DA490010	**General features:** Terminal strip in housing for wiring up to 8 room thermostats and up to 32 actuators; up to 4 actuators per channel can be connected **Max. switching current:** output 1-8: 3 (1) A **Total of all the outputs (8 channels):** 3 (1) A **Switching power:** total of 1380 W **ECO contact:** if clock regulators are used, a time zone can be defined that can be switched to ECO function via an external switching contact on terminal U **Control function:** Heating or cooling	
VOORL-318.053 	DA490210	**As for VOORL-318.009, but including pump module (max. 0.75 A)**	

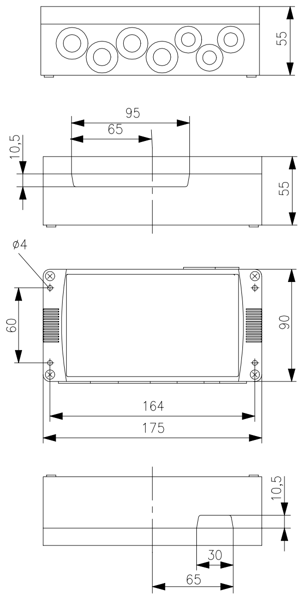
ACCESSORIES	ITEM NO.	FEATURES	EURO / PG
JZ-24 	BN990002	Magnetic fastening set for simple and safe fastening of the multi-channel receiver and VOORL terminal strips on a metallic substrate (for example, heating manifold)	

TERMINAL STRIP FOR HEATING / COOLING MANIFOLD VOORL

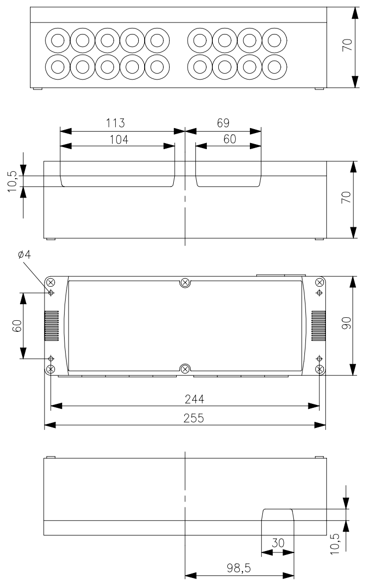
FOR 5 OR 8 ROOM THERMOSTATS

ILLUSTRATIONS

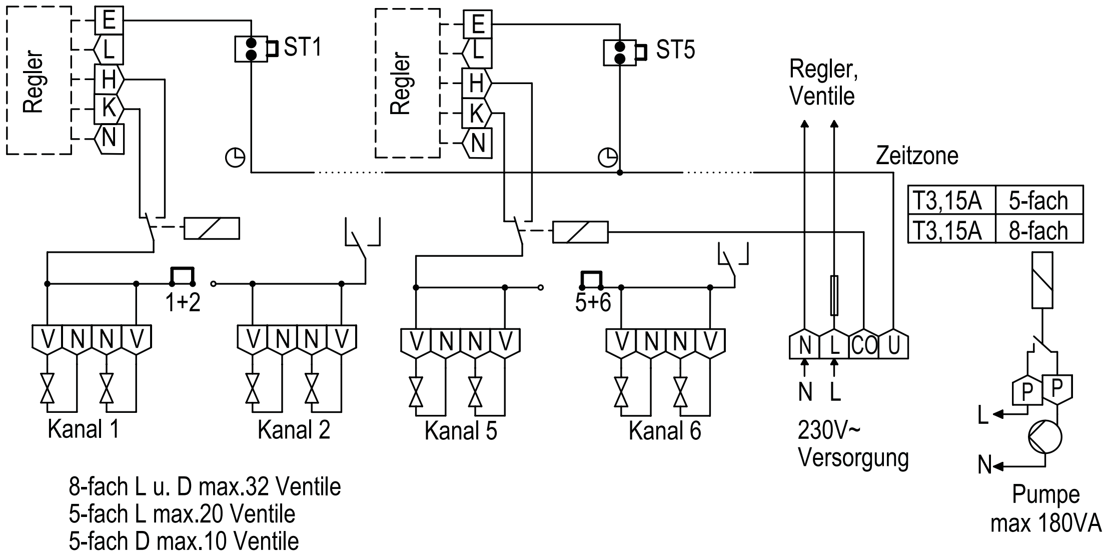
VOORL-215.xxx


55
95
65
10,5
55
ø4
60
90
164
175
10,5
30
65

VOORL-318.xxx


70
113
104
69
60
10,5
70
ø4
60
90
244
255
30
98,5
10,5

VOORL-318.xxx

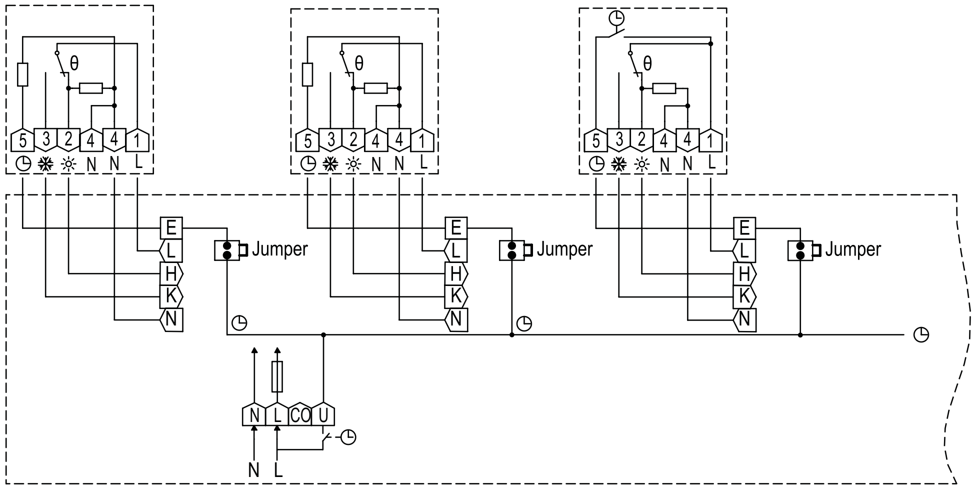

Regler
E
L
H
K
N
ST1
Regler
E
L
H
K
N
ST5
Regler,
Ventile
Zeitzone
T3,15A 5-fach
T3,15A 8-fach
1+2
5+6
V N N V
V N N V
V N N V
V N N V
Kanal 1
Kanal 2
Kanal 5
Kanal 6
N L CO U
N L
230V~
Versorgung
P P
L
N
Pumpe
max 180VA

8-fach L u. D max.32 Ventile
5-fach L max.20 Ventile
5-fach D max.10 Ventile

Internal view VOORL-318.xxx

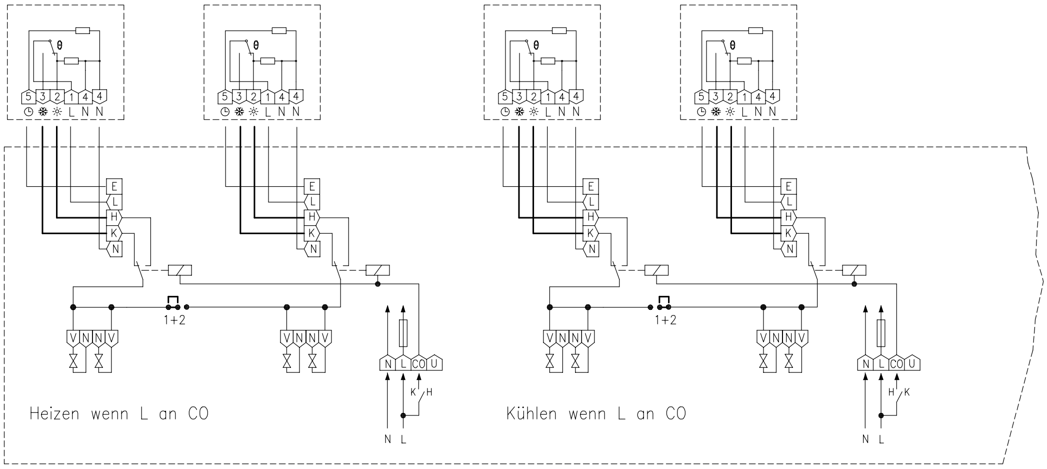
NOTES ON AND EXAMPLES
FOR WIRING THE VOORL TERMINAL STRIPS

SETTING UP TIME ZONES

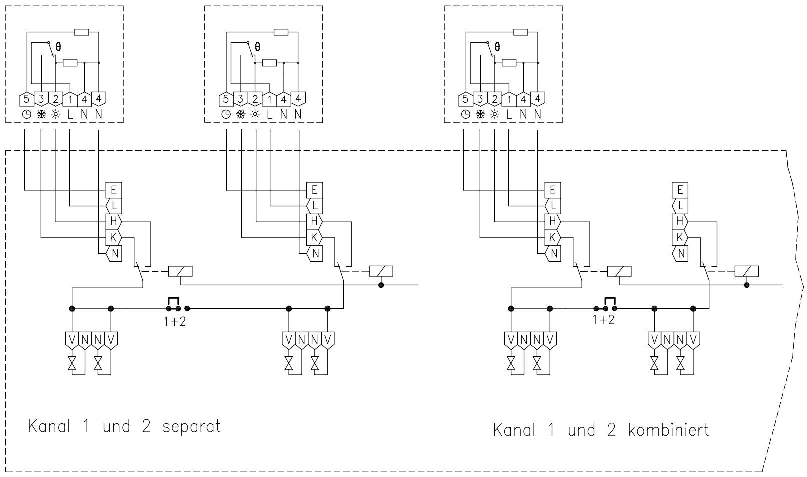

θ
5 3 2 4 4 1
N N L
E
L
H
K
N
Jumper
N L CO U
N L

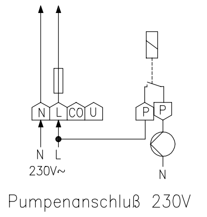
TZ = time zone

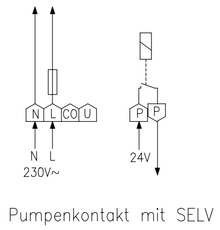
INVERSION OF THE CO CONTACT


θ
5 3 2 1 4 4
L N N
E
L
H
K
N
1+2
V N N V
N L CO U
K H
N L
Heizen wenn L an CO
Kühlen wenn L an CO
H K

STANDARD WIRING AND COMBINATION OF CHANNEL 1/2


θ
5 3 2 1 4 4
L N N
E
L
H
K
N
1+2
V N N V
Kanal 1 und 2 separat
Kanal 1 und 2 kombiniert


N L CO U
P P
N L
230V~
N
Pumpenanschluß 230V


N L CO U
P P
N L
230V~
24V
Pumpenkontakt mit SELV

NEW

ACTUATOR ‘STELLA’ 230 V NC
FOR AUTOMATIC HYDRAULIC COMPARISON

alre
STELLA
Made in Germany

TECHNICAL DATA

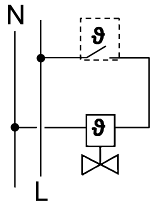
Operating voltage:	230 V~, 50 Hz
Max. power consumption:	30 W
Max. starting current:	approx. 0.13 A
Housing colour:	grey-orange
Housing material:	PA6 plastic
Ambient temperature:	0 … 50 °C
Storage temperature:	–25 … +60 °C
Permissible atmospheric humidity:	Max. 95% rel. humidity, non-condensing
Mounting / attachment:	M 30x1.5
Protection rating:	IP54
Protection class:	II
Safety and EMC:	according to DIN EN 60730
Average power consumption:	approx. 1.7 W
Opening / closing time:	approx. 3 min
Nominal stroke:	3.5 mm
Function type:	normally closed
Nominal closing force:	110 N
Connecting cable:	1 m / 2x0.34 mm²

APPLICATION

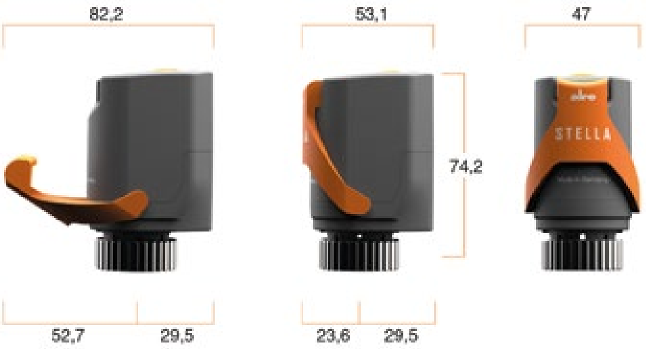
‘Stella’ – the intelligent autonomous 230 VAC NC electrothermal actuator for automatic adaptive hydraulic comparison of heating manifolds’ heating circuits in surface heating and surface cooling systems.

Sensors on the supply and return lines measure temperature differences and algorithm continuously calculates the necessary temperature spread and the appropriate valve position.

Normally closed and features a folding lever for easily unscrewing the thermostat valve or opening it manually when it is disconnected from the mains. With integrated inflow temperature limitation

TYPE / IMAGE	ITEM NO.	FEATURES	CIRCUIT DIAGRAM	EURO / PG
ZB00A-010.185 	G8990010	**Actuator for automatic hydraulic comparison**		
SET 31 	VV000046	Set for performing fully automatic hydraulic comparison consisting of 5 surface-mounted room thermostats, 1 terminal strip and 6 actuators.		
SET 32 	VV000047	Set for performing fully automatic hydraulic comparison consisting of 5 flush-mounted room thermostats, 1 terminal strip and 6 actuators.		

ILLUSTRATIONS



BRIEF DESCRIPTION

- Combinable with the commercial two-point room temperature controller (electromechanical, electronic, PWM)
- For heating and cooling systems
- Features a folding lever for easily unscrewing the thermostat valve or opening it manually when it is disconnected from the mains
- Temperature sensors suited for surface heating pipes made of plastic, metal or combinations thereof with an external diameter of 12 to 20 mm
- Measures a heating circuit’s outflow temperature
- The range of setpoint temperatures Stella calculates is variable and dependent on user behaviour and the system’s environment
- The valve can be adjusted to any desired position between OPEN and CLOSED and set to remain in that position.
- An expansion element and a path measurement system are needed to position the valve lift.

ELECTRO-THERMAL VALVE ACTUATORS
FOR HEATING, VENTILATION AND AIR CONDITIONING TECHNOLOGY

TECHNICAL DATA

Housing colour:	pure white, like RAL 9010
Housing material:	PC plastic, GF (20%)
Ambient temperature:	0 … 50 °C
Storage temperature:	−20 … +70 °C
Permissible atmospheric humidity:	max. 95% rel. humidity, non-condensing
Mounting / attachment:	M 30x1.5
Protection rating:	IP42
Protection class:	II
Safety and EMC:	according to DIN EN 60730
Average power consumption:	Approx. 3 W
Opening / closing time:	approx. 4 min
Nominal stroke:	3 mm
Function type:	normally closed
Nominal closing force:	90 N
Connecting cable:	0.8 m / 2x0.5 mm²
Valve position indicator:	2x (at the top and the side)

APPLICATION

Extremely compact design:
Can be fitted quickly and comfortably thanks to the slim shape in the area around the fastening nut.

Can be fitted in any position:
Lateral drainage holes carry off any leakage water that from the valve plunger into the open, thus avoiding damage to the drive.

Additional valve monitoring:
Two additional viewing windows at the side allow users to visually check the respective valve position with ease; this does not work when mounted in a suspended manner.

TYPE / IMAGE	ITEM NO.	FEATURES	EURO / PG
ZBOOA-010.100 	H9100010	**Operating voltage:** 230 V~, 50 Hz **Max. power consumption:** 70 W **Max. starting current:** approx. 0.3 A	
ZBOOA-040.100 	H9100000	**Operating voltage:** 24 VDC or 24 VAC **Max. power consumption:** 12 W **Max. starting current:** approx. 0.5 A	

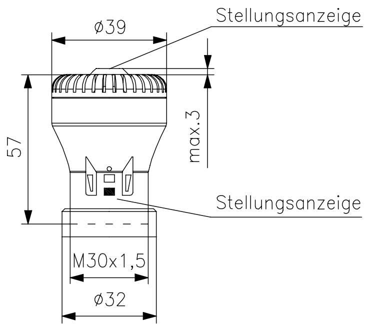
Thanks to their M 30x1.5 fastening and their characteristics (normally closed), the actuators are suitable for the following valve and distributor makes:
Beulco, Empur, Heimeier, Kamo, Oventrop, Purmo, SBK, SKV, Strawa, Taconova, Watts

Brief description:
The drive features a compact, space-saving design.
The device can be mounted easily thanks to its narrowed shape, especially in the fastening area of the nut.
The connecting cable is not located near the fastening nut. This reduces the probability of contact with equipment carrying hot water.
Since the fastening nut allows continuous screwing onto the thread, by unscrewing the nut by two or three turns, it is possible to open the valve in an electrically de-energised state – something that cannot be done with bayonet couplings and impulse couplings.
Discharged water is dissipated via a draining system. Gaskets are not required thanks to the special design.

The double position display has the following advantages:
The upper display provides the option of a visual or, in conditions of bad visibility, tactile function test of the drive.
The lower viewing windows allow an additional check to determine whether the valve to be actuated follows the lifting movement of the drive.
At the beginning of the heating period, it can happen off and on that the valve plungers get ‘stuck’. Therefore, with the additional display, it is possible to determine whether the cause lies with the actuator or with the valve in the event the valve does not open. However, that is not possible when mounted in a suspended manner.

ILLUSTRATIONS

Valve actuator



Valve actuator with extended push rod

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